
CRASH ON DEMAND: WELCOME TO THE BROWN TECH FUTURE

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INTRODUCTION

This essay updates my *Future Scenarios* (2007)¹ work but also builds on the essay *Oil vs Money; Battle for Control of the World* (2009)², as a running commentary on the rapid changes in the big picture context for permaculture activism, especially in the Australian context. It assumes understanding of these previous works and, of course permaculture. 'Preaching to the choir' it may be, but hopefully it contributes new perspectives to keep permaculture activists ahead of the game.

Permaculture teaching and activism have always aimed to work with those already interested in changing their lives, land and communities for the better, rather than proselytising the disinterested majority. Over many decades, idealistic youth have responded positively to the 'can-do' personal empowerment of permaculture design, but it has also attracted more experienced citizens disillusioned with top down mainstream environmentalism's failure to stop the juggernaut of consumer capitalism. Similarly, disillusioned social and political activists are just starting to recognise permaculture as a potentially effective pathway for societal change as 20th century style mass movements seem to have lost their potency.

My argument is essentially that radical, but achievable, behaviour change from dependent consumers to responsible self reliant producers, (by some relatively small minority of the global middle class) has a chance of stopping the juggernaut of consumer capitalism from driving the world over the climate change cliff. It maybe a slim chance, but a better bet than current herculean efforts to get the elites to pull the right policy levers (whether by sweet promises of green tech profits or alternatively threats from mass movements shouting for less consumption).

My argument suggests this could happen by reducing consumption and capital enough to trigger a crash of the fragile global financial system. This provocative idea is intended to increase understanding while taking the risk that the argument could turn people away from permaculture as positive environmentalism, and brand me a lunatic, if not a terrorist. That risk is an analogy for the massive risks that humanity now faces, where all options have unintended consequences and that normal, apparently sensible, behaviour is just as likely to lead to disaster as the most apparently mad schemes. Even mainstream 'responsible' proposals for saving us from climate chaos could also crash the financial system. In times of tumultuous change, small events may trigger big changes we can't control; a key understanding from the permaculture principle *Creatively Use and Respond to Change*.

Acknowledgements

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Biographical Note

David Holmgren is best known as the co-originator of the permaculture concept. He lives with his partner Su Dennett at Melliodora, their permaculture demonstration site in Hepburn, Central Victoria

¹ *Future Scenarios; Mapping the Cultural Implications of Peak Oil and Climate Change*

<http://www.futurescenarios.org/>

Future Scenarios; How Communities Can Adapt to Peak Oil and Climate Change, Chelsea Green 2008.

² See Holmgren Design website, <http://holmgren.com.au/money-vs-fossil-energy/>

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SPECULATIONS OF ALTERNATIVE TECHNOLOGY AND PERMACULTURE PIONEERS

Ten years ago I had a visit from colleague Peter Harper³ from the Centre For Alternative Technology, during which we had a 'debate' about Peak Oil and Climate Change. Peter was of the opinion that humanity was facing a climate emergency that required consideration of every available option. I thought that Peak Oil would have a much faster impact on the world economy, and should save us from the climate cooker through economic contraction, even if the consequences for the economy and society could be severe. My thinking reflected a strongly held view that the long-term future for humanity was one of energy descent, which we had to gracefully accept and adopt as a positive future.

From my perspective, Peter was somewhat reluctantly accepting the need to use technology and large-scale institutions (associated with global capital and government) to ward off the climate catastrophe. While Peter did not think nuclear power was a solution, his views had some similarity to other leading environmental communicators such as George Monbiot who have supported nuclear as necessary in dealing with the climate emergency. During another of Peter's visits in 2007 I noted to him that the evidence from the Arctic was far worse than anyone had previously suggested, while he admitted that oil production seemed to be in serious trouble.

In *Future Scenarios* (2007) I outlined four potential energy descent scenarios that could emerge over the following 10 to 40 years, globally and/or locally. I saw climate change and peak oil as the primary drivers, but the symptoms would be geopolitical, economical and psychosocial. Since that work was completed, a host of rapid changes and novel factors has complicated the picture.

1. The global financial crisis and sovereign debt crisis in Europe, political turmoil and hardship in southern Europe
2. Rapid expansion of the energy and resource industries through mega projects on an unprecedented scale.
3. Rapid growth in biofuels, high food prices and dwindling global grain stocks.
4. Failure of intergovernmental climate and trade negotiations.
5. A series of mega natural disasters colliding with manmade catastrophes such as the 2011 earthquakes, tsunami and nuclear accidents in Japan.
6. The securitisation of everyday life, such as integration of emergency management functions within national security, rather than human or community security operational frameworks.
7. The Arab spring, regime change and wars in North Africa and the Middle East.
8. The surveillance state, repression of dissent and cyber wars between nation states and sub national players.

The reasons behind these and other current events are complex, but they should all be recognised as being driven at least in part by energy and climate.

PEAK OIL: REAL, BUT NOT QUITE CATASTROPHIC

As I expected, the linkage between these events and the more enduring drivers of Peak Oil and Climate Change is generally misunderstood or ignored in the mainstream media that habitually

³ Peter is credited to have coined the term "alternative technology", and has been the director of the Centre for Alternative Technology in the UK. See Peter Harper's critique of permaculture in *Cleaning out the stables* (2003) http://academia-danubiana.net/wp-content/uploads/2012/05/2.12.09.01_HARPER-A-critique-of-permaculture.pdf and its latest revision *Big Rock Candy Mountain* (2013) <http://www.thelandmagazine.org.uk/sites/default/files/The Big Rock Candy Mountain.pdf>

focuses on the minutia of arcane but defunct economic theories on the one hand, and tribal stories of good and evil, informed by ideology and culture on the other. The propaganda about Peak Oil being defeated by the resurgence in the American energy sector has been more than adequately rebutted⁴ but prevails as a fantasy to keep masses of Americans, if not other peoples, hopeful of better times ahead. In my view, the signature of Peak Oil in most of the above symptoms is stronger than that of climate change (so far), reflecting my position in the debate with Peter Harper.

On the other hand, those factors have not played out as I expected, with an undulating plateau in oil production and massive economic stimulus, moderating, if not avoiding, severe global economic depression (so far). Consequently the massive reduction in greenhouse gas emissions (GGE), which I was expecting has not happened (so far). The rapid collapse (10% decline rate) in oil production due to geological factors now seems less likely, partly because the sustained high energy prices (around \$100/barrel) have allowed private and national energy corporations to put in place many new fossil and renewable energy projects that are moderating the impact of the decline in production from ageing “super giant” fields. Along with a massive expansion in coal burning, most of these new energy projects directly or indirectly accelerated greenhouse gas emissions. For example tar sands, ultra deep oil, and shale gas all generate far more greenhouse gases than the conventional sources they have replaced. Biofuels have indirectly used fossil fuels or impacted soil and vegetation carbon at levels that ensure no net reduction in GGE in many cases.

When we look at the global situation through the lens of the *Future Scenarios* framework we can see that the substantial substitution by non-conventional oil and gas has compensated for the significant declines in conventional oil production since 2005 to the present, setting the conditions for less severe “Green Tech” and “Brown Tech” scenarios. Importantly, there is strong evidence that the global financial crisis (GFC) and resulting sovereign debt crisis, has marked the beginning of the end of global economic growth.⁵ If this is the case then the now well-established contraction in consumption of resources⁶ in many overdeveloped economies will allow supply to more closely match demand for oil and resources generally. In a macro system sense, economic contraction and the breakdown of established middle class consumption, are the adaptive processes by which humanity is dealing with declining net energy availability.

CLIMATE; FROM BAD TO WORSE

While the Peak Oil scenario appears more moderate than the worst predictions, the situation with climate change seems to be at the extreme end of scientific modelling. Greenhouse gas emissions increasing faster than the worst-case scenarios have combined with the almost complete failure of international agreements to limit future emissions. This situation has made “dangerous climate change” a given and raised the spectre of more severe impacts. Beyond the modelling, it has been the increase in droughts, extreme weather events, and the astonishingly fast disappearance of Arctic sea ice that have provided the clearly recognised markers of climate change in action.

⁴ See The Oil Drum analysis *Is shale oil the answer to peak oil?* by Gail the Actuary

<http://www.theoil Drum.com/node/7499>

and *Three nails in the Coffin of Peak Oil* by Euan Means

<http://www.theoil Drum.com/node/10093>

⁵ See Heinberg, *The End of Growth*, New Society Publishers, 2011

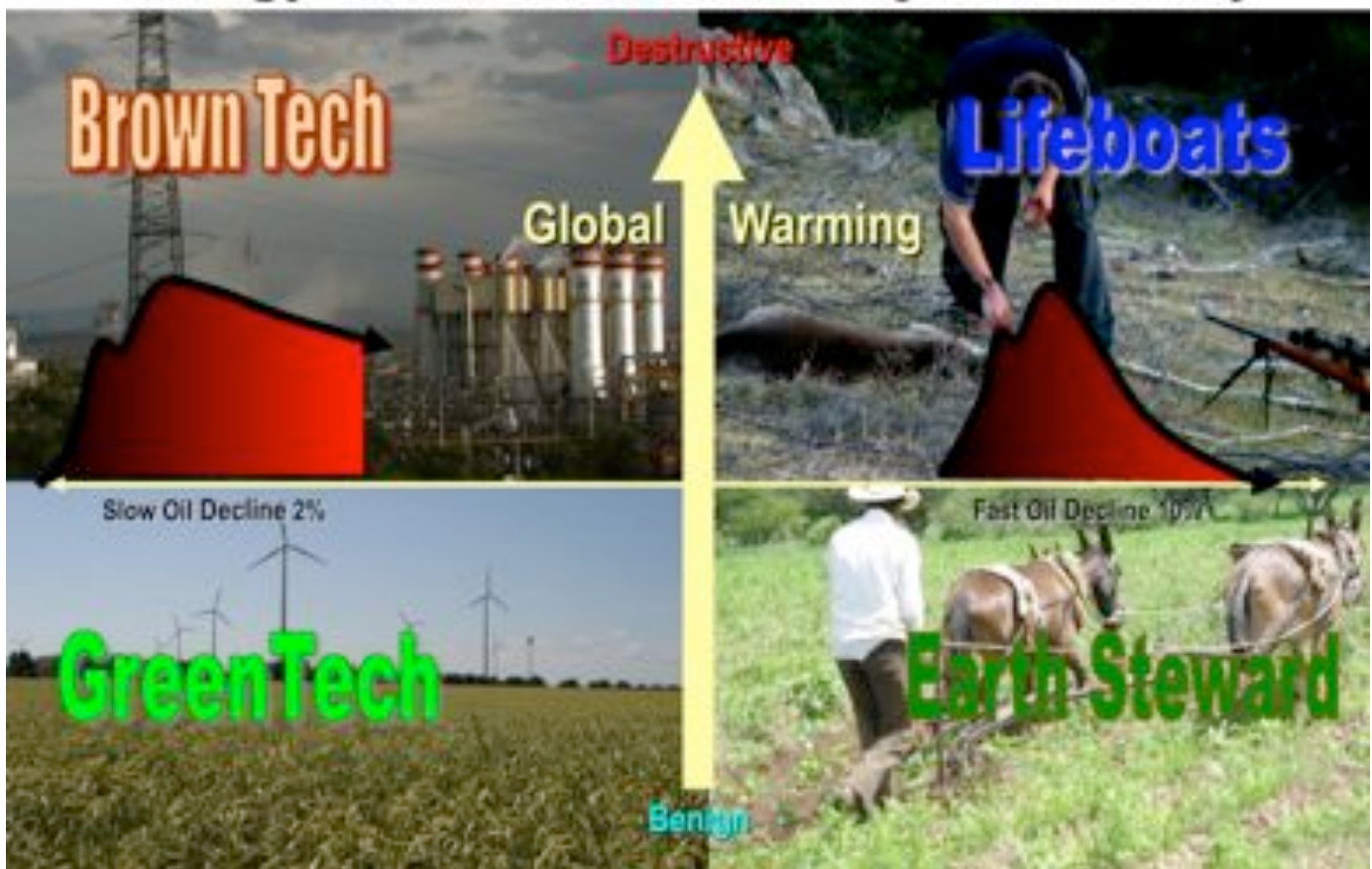
⁶ For example total Vehicle Miles Travelled in the USA has since 2007 been falling or flat (instead of always growing, as it has done almost every year since records began in 1947).

http://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm

The dip in global emissions created by the 2008 GFC was ignored by the climate activist community⁷ as an inconvenient truth. Following the failure of the Copenhagen climate summit, I critiqued the alignment of the climate activist community with the masters of finance and against the resource industries as a naïve alliance.⁸ While the bubble economy of tradable carbon favoured by the bankers has not eventuated, Quantitative Easing has proved to be a substitute allowing the big banks to make money without risk of more bad debt, while the citizens accumulate unpayable private and public debt on an historically unprecedented scale. Economic contraction appears to be far worse than official statistics indicate, but the energy and resource sectors have remained relatively robust in response to stubbornly high prices and the continued availability of credit to support massive new projects. The continued access to credit is arguably the most important factor preventing a decline in energy supply.

The lower net energy return of new energy resources means the real economic benefits to society are far less than in the past, while greenhouse gas emissions (GGE) are much higher. This positive feedback of higher GGE despite economic contraction is the very essence of my Brown Tech scenario.

Energy Descent Scenarios (2020-2050)



⁷ Since the formation of the IPCC in 1988, a global network of dedicated individuals have been actively trying to get organisations from the UN and World Bank, to national governments, corporations, banks to act on climate change. While some of these people are typically activists working for NGO's they also include scientists, politicians, bureaucrats, business leaders, entrepreneurs. These people have been interacting over such a long time and at such a large scale, that it is reasonable to use the term 'community' in the sense of having shared jargon, understanding and aims.

⁸ See Holmgren, [Oil vs Money: the battle for control of the world.](#)

BROWN TECH; HERE AND NOW

So, a decade after our “debate” I have to concede that Peter Harper was right about the climate emergency, and that so far, Peak Oil has accelerated GGE through the rapid development of coal, non-conventional oil and gas along with the biofuel fiasco.⁹ Maybe those discussions with Peter had a substantial influence on *Future Scenarios* because only 5 years after I wrote the scenarios I have come to the conclusion that the Brown Tech world (of *Severe climate change but Slow decline in energy*) is already emergent.

In *Future Scenarios* I mentioned financial instability and bubble economics as major factors reinforcing my primary analysis of the “Energy Descent Future”. I saw these factors, and the resulting GFC as symptoms of the more fundamental drivers of peak oil (and therefore peak net energy available to society). My focus on these geological and climate constraints beyond human control, had led me to underestimate the importance of how the complexity of the global financial system will, in the shorter-term, shape the future. In a recent interview about “Retrofitting The Suburbs¹⁰” I admitted that after decades focused on biological and energetic foundations for sustainable human culture, I had, in recent times become obsessed with money as a more short-term driver of the emerging energy descent future.

How we make the transition into contracting economies will determine how we deal with the intractable slower moving drivers of energy and climate. One of the great debates in peak oil circles has been whether Peak Oil would trigger hyperinflation or deflation. By 2008 the work of both systems analyst Nicole Foss,¹¹ and economist Steve Keen¹² had convinced me that deflationary economics would be (and already are) the most powerful factors shaping our immediate future.

I believe my characterisation (in “*Oil vs Money*”) of the most powerful agents of global capitalism being at war with each other is still useful, but this conflict has not stopped some weird synergy between heroic logistics of the energy harvesting industries and mad money schemes by central banks pushing the global economy into faster and faster overshoot. At the same time breathtaking forms of free money for banks and massive transfer of financial risk to the public from banks has kept the global financial system from collapse, but with worsening circumstances for the public in the most vulnerable nations, including previously affluent ones such as Greece.

My Green Tech scenario included an extended renewable energy boom stimulating rural and regional economies, part real- and partly bubble- economics. I imagined the Brown Tech scenario being driven by growth in fossil fuel and nuclear energy sectors directed by resurgent resource nationalist governments. In the USA, Australia, Canada and other countries still wedded to market solutions, we are seeing a mix of real but dirty wealth generating projects along with others (such as shale gas) that appear to be dirty without much in the way of real wealth.

⁹ Fiasco in several senses; firstly the adverse environmental impacts (e.g. increasing GHG emissions from rainforest clearing for palm oil), secondly the lack of economic viability with subsidy to unsustainable agriculture (e.g. corn in mid west of US), thirdly the failure of expected technological breakthroughs (e.g. cellulosic ethanol and algal biodiesel), fourthly failure to effectively understand how low net energy yield predicts likely lack of economic viability at the scale needed to replace a significant proportion of fossil fuel use.

¹⁰ *The Conversation: David Holmgren, co-founder of permaculture movement*, broadcast in By Design program on ABC Radio National on the Boxing Day 2012.

<http://www.abc.net.au/radionational/programs/bydesign/the-conversation---david-holmgren2c-father-of-permaculture/4437220>

¹¹ See the Automatic Earth website. <http://theautomaticearth.com/>

¹² See Steve Keen’s blog <http://www.debtdeflation.com/blogs/>

In presentations and workshops on *Future Scenarios* I point out that different countries are predisposed to different scenarios. For example, New Zealand tends towards Green Tech because of relative insulation from the effects of climate change and having distributed wealth from agriculture, forestry and renewable energy. Australia on the other hand has been a candidate for Brown Tech as the most at risk from climate change among the OECD countries while being one of the emerging fossil energy (mostly coal and gas) superpowers. With rapidly increasing energy and resource exports, expanding population and consumption, plus increasing reactionary politics, Australia shows many of the signs of the Brown Tech scenario. All it will take is economic contraction to generate inequity and conflict. The bubble in house prices in Australia is arguably more extreme than in the US, Ireland or Spain at their peaks. This in combination with a drop in prices and demand for export commodities could easily trigger an extreme economic contraction that would generate the inequality and conflict typical of the Brown Tech scenario.

The final step to the Brown Tech world would be the shift from a market to command economy. While evidence around the world suggest the elites remain beholden to markets despite their gross failings (especially in finance), the likely increase in climate change induced natural disasters will force governments to take control. The ongoing nuclear crisis in Japan is a good illustration of the process.

IS TIME RUNNING OUT FOR POWERDOWN?

Many climate policy professionals and climate activists are now reassessing whether there is anything more they can do to help prevent the global catastrophe that climate change appears to be. The passing of the symbolic 400ppm CO2 level certainly has seen some prominent activists getting close to a change of strategy. As the Transition Town movement founder and permaculture activist Rob Hopkins says, the shift in the mainstream policy circles from mitigation to adaptation and defence is underway (i.e. giving up).¹³

While political deadlock remains the most obvious obstacle, I believe at least some of that deadlock stems from widespread doubt about whether greenhouse gas emissions can be radically reduced without economic contraction and/or substantial wealth redistribution. Substantial redistribution of wealth is not generally taken seriously perhaps because it could only come about through some sort of global revolution that would itself lead to global economic collapse. On the other hand, massive economic contraction seems like it might happen all by itself, without necessarily leading to greater equity.

The predominant focus in the “climate professional and activist community” on policies, plans and projects for transition to renewable energy and efficiency has yet to show evidence of absolute reductions in greenhouse gas emissions that do not depend on rising greenhouse gas emissions in other parts of the global economy. For example, the contribution of renewable technology installation to reduced GGE in some European countries appears to be balanced by increased GGE in China and India (where much of the renewable technologies are manufactured).

¹³ See *Why I'm marking passing 400ppm by getting back on an aeroplane* by Rob Hopkins published on Transition Culture on 16 May, 2013
<http://transitionculture.org/2013/05/16/why-im-marking-passing-400-ppm-by-getting-back-on-an-aeroplane/>

The Jevons' paradox¹⁴ suggests that any gains in efficiency or tapping of new sources of energy will simply expand total consumption rather than reduce consumption of resources (and therefore GGE).

Richard Eckersley in his article 'Deficit Deeper Than Economy' identifies the improbability of ever decoupling economic growth from resource depletion and green house gas emissions. He states "Australia's material footprint, the total amount of primary resources required to service domestic consumption (excludes exports and includes imports) was 35 tonnes per person in 2008, the highest among the 186 countries studied. Every 10 per cent increase in gross domestic product increases the average national material footprint by 6 per cent. By 2050, a global population of 9 billion people would require an estimated 270 billion tonnes of natural resources to fuel the level of consumption of OECD countries, compared with the 70 billion tonnes consumed in 2010."¹⁵

Time seems to be running out for any serious planned reductions in GGE adequate to prevent dangerous climate change without considering a powerdown of the growth economy. The ideas of degrowth¹⁶ are starting to get an airing, mostly in Europe, but the chances of these ideas being adopted and successfully implemented would require a long slow political evolution if not revolution. We don't have time for the first, and the second almost certainly crashes the financial system, which in turn crashes the global economy.

IS TIME RUNNING OUT FOR BOTTOM UP ALTERNATIVES?

Like many others, I have argued that the bottom up creation of household and community economies, already proliferating in the shadow of the global economy, can create and sustain different ways of well-being that can compensate, at least partly, for the inevitable contraction in centralised fossil fuelled economies (now well and truly failing to sustain the social contract in countries such as Greece and Egypt). When the official Soviet Union economy collapsed in the early '90s it was the informal economy that cushioned the social impact. Permaculture strategies focus on the provision of basic needs at the household and community level to increase resilience, reduce ecological footprint and allow much of the discretionary economy to shrink. In principle, a major contraction in energy consumption is possible because a large proportion of that consumption is for non-essential uses by more than a billion middle class people. That contraction has the potential to switch off greenhouse gas emissions but this has not been seriously discussed or debated by those currently working very hard to get global action for rapid transition by planned and co-ordinated processes. Of course it is more complicated because the provision of fundamental needs, such as water, food etc., are part of the same highly integrated system that meets discretionary wants.

However, the time available to create, refine and rapidly spread successful models of these bottom-up solutions is running out, in the same way that the time for government policy and corporate capitalism to work their magic in converting the energy base of growth from fossil to renewable sources.¹⁷ If the climate clock is really so close to midnight what else could be done?

¹⁴ During the early stages of the industrial revolution English economist William Stanley Jevons noticed that a doubling in the efficiency of steam engine technology led to an increase rather than a halving of coal consumption as businesses found more uses for the available power. See *the Coal Question* (1865).

¹⁵ See *Deficit Deeper Than Economy* <http://www.canberratimes.com.au/federal-politics/political-opinion/deficit-deeper-than-economy-20130929-2umd3.html#ixzz2js46nGBp>

¹⁶ See Wikipedia article for overview of movement <http://en.wikipedia.org/wiki/Degrowth>

¹⁷ Of course true believers in global capitalism's capacity to reduce GGE in time, still abound. See for example Christian Parenti's piece from Dissent, reposted at Resilience.org, which is amusingly titled *A Radical Approach*

ECONOMIC CRASH AS HELL OR SALVATION

For many decades I have felt that a collapse of the global economic systems might save humanity and many of our fellow species great suffering by happening sooner rather than later because the stakes keep rising and scale of the impacts are always worse by being postponed. An important influence in my thinking on the chances of such a collapse was the public speech given by President Ronald Reagan following the 1987 stock market crash. He said “there won’t be an economic collapse, so long as people don’t believe there will be an economic collapse” or words to that effect. I remember at the time thinking; fancy the most powerful person on the planet admitting that faith (of the populous) is the only thing that holds the financial system together.

Two decades on I remember thinking that a second great depression might be the best outcome we could hope for. The pain and suffering that has happened since 2007 (from the more limited “great recession”) is more a result of the ability of the existing power structures to maintain control and enforce harsh circumstances by handing the empty bag to the public, than any fundamental lack of resources to provide all with basic needs. Is the commitment to perpetual growth in wealth for the richest the only way that everyone else can hope to get their needs met? The economy is simply not structured to provide all with their basic needs. That growth economy is certainly coming to an end; but will it slowly grind to a halt or collapse more rapidly?

The fact that the market price for carbon emissions has fallen so low in Europe is a direct result of stagnating growth. Past economic recessions and more serious economic collapses, such as faced by the Soviet Union after its oil production peaked in the late 1980’s,¹⁸ show how greenhouse gas emissions can and have been reduced, then stabilizing at lower levels once the economy stabilized without any planned intention to do so. The large number of oil exporters that have more recently peaked has provided many case studies to show the correlation with political upheaval, economic contraction and reductions in GGE. Similarly many of the countries that have suffered the greatest economic contraction are also those with the greatest dependence on imported energy, such as Ireland, Greece and Portugal. The so-called Arab Spring, especially in Egypt, followed high food and energy prices driven by collapsed oil revenues and inability to maintain subsidies. The radical changes of government in Egypt have not been able to arrest the further contraction of the economy.

The effects of peak oil and climate change have combined with geopolitical struggles over pipeline routes to all but destroy the Syrian economy and society.¹⁹

SLOW CONTRACTION OR FAST COLLAPSE

The fragility of the global economy has many unprecedented aspects that make some sort of rapid collapse of the global economy more likely. The capacity of central banks to repeat the massive stimulus mechanism in response to the 2008 global financial crisis, has been greatly reduced, while the faith that underpins the global financial system has weakened, to say the least. Systems

to the Climate Crisis which is actually a plea for activists to forget trying to reform, let alone build systems based on sustainability principles, in favour of getting behind the power of corporations and governments to make big changes quickly (to get GGE falling fast enough).

¹⁸ See for example, *Peak oil and the fall of the Soviet Union* by Douglas B. Reynolds on The Oil Drum.

http://www.theoil Drum.com/node/7878?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+theoil Drum+%28The+Oil+Drum%29

¹⁹ See Guardian article by Nafeez Ahmed.

<http://www.guardian.co.uk/environment/earth-insight/2013/may/13/1?INTCMP=SRCH>

thinkers such as David Korowicz²⁰ have argued that the inter-connected nature of the global economy, instantaneous communications and financial flows, “just in time” logistics, and extreme degrees of economic and technological specialisation, have increased the chances of a large scale systemic failure, at the same time that they have mitigated (or at least reduced) the impact of more limited localised crises.

Whether novel factors such as information technology, global peak oil and climate change have increased the likelihood of more extreme economic collapse, Foss and Keen have convinced me that the most powerful and fast-acting factor that could radically reduce greenhouse gas emissions is the scale of financial debt and the long-sustained growth of bubble economics stretching back at least to the beginnings of the “Thatcherite/Reaganite revolution” in the early 1980s. From an energetics perspective, the peak of US oil production in 1970, and the resulting global oil crises of 73 and 79, laid the foundations for the gigantic growth in debt that super accelerated the level of consumption, and therefore GGE.

Whatever the causes, all economic bubbles follow a trajectory that includes a rapid contraction, as credit evaporates, followed by a long-sustained contraction, where asset values decline to lower levels than those at the beginning of the bubble. After almost 25 years of asset price deflation in Japan, a house and land parcel of 1.5ha in a not too isolated rural location can be bought for \$25,000. A contraction in the systems that supply wants are likely to see simultaneous problems in the provision of basic needs. As Foss explains, in a deflationary contraction, prices of luxuries generally collapse but essentials of food and fuel do not fall much. Most importantly, essentials become unaffordable for many, once credit freezes and job security declines. It goes without saying that deflation rather than inflation is the economic devil that governments and central banks most fear and are prepared to do almost anything to avoid.

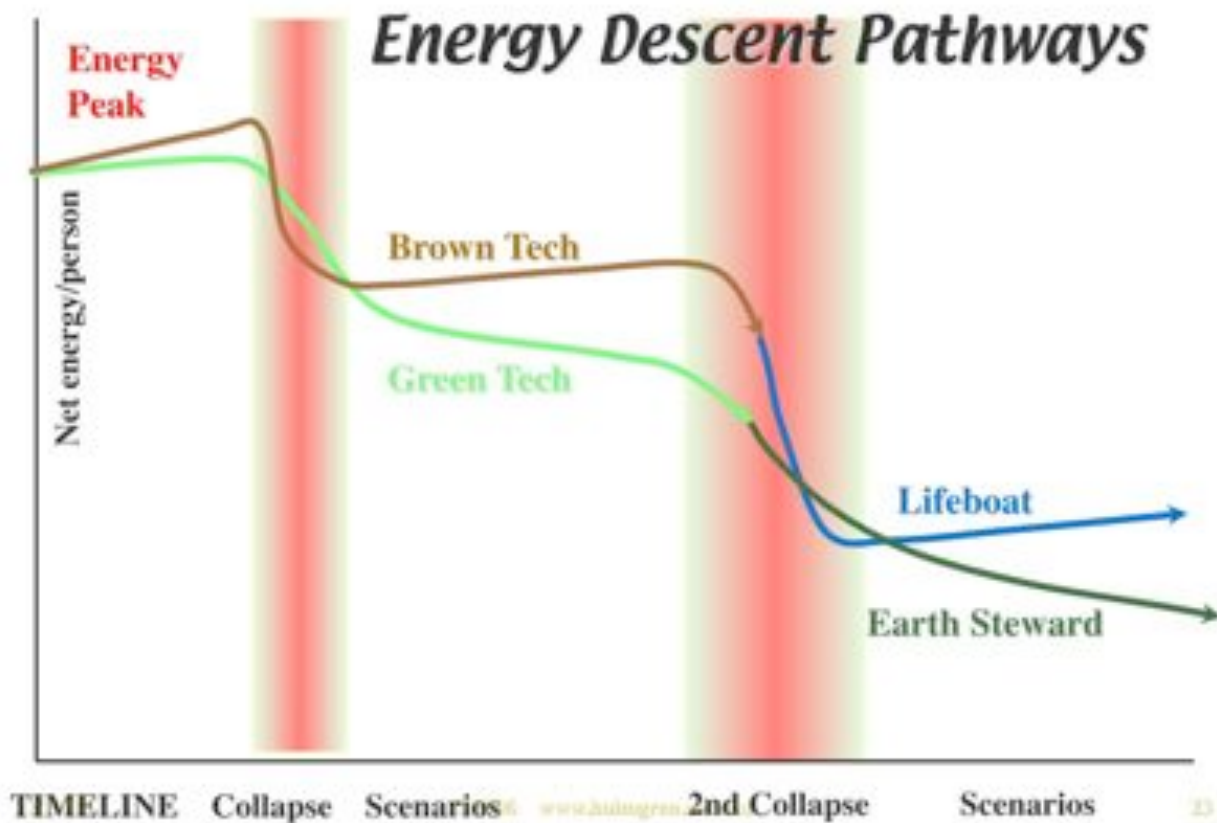
Giving credence to the evidence for fast global economic collapse may suggest I am moving away from my belief in the more gradual Energy Descent future that I helped articulate. John Michael Greer has been very critical of apocalyptic views of the future in which a collapse sweeps away the current world leaving the chosen few who survive to build the new world. In large measure I agree with his critique but recognise that some might interpret my work as suggesting a permaculture paradise growing from the ashes of this civilisation. To some extent this is a reasonable interpretation, but I see that collapse, as a long drawn-out process rather than resulting from a single event.²¹

I still believe that energy descent will go on for many decades or even centuries. In *Future Scenarios* I suggested energy descent driven by climate change and peak oil could occur through a series of crises separating relatively stable states that could persist for decades if not centuries. The collapse of the global financial system might simply be the first of those crises that reorganise the world. The pathways that energy descent could take are enormously varied, but still little discussed, so it is not surprising that discussions about descent scenarios tend to default into ones of total collapse. As the language around energy descent and collapse has become more nuanced, we start to see the distinction between financial, economic, social and civilisational collapse as potential stages in an energy descent process where the first is fast changing and relatively superficial and the last is slow moving and more fundamental.

²⁰ See *Trade-Off*, Metis Risk Consulting & Feasta, 2012

<http://www.feasta.org/wp-content/uploads/2012/06/Trade-Off1.pdf>

²¹ leaving aside the issue of whether the energy descent future will be a permaculture paradise or not.



In *Future Scenarios* I suggested the more extreme scenarios of Earth Steward and Lifeboat could follow Green Tech and Brown Tech along the stepwise energy descent pathway. If we are heading into the Brown Tech world of more severe climate change, then as the energy sources that sustain the Brown Tech scenario deplete, and climate chaos increases, future crises and collapse could lead to the Lifeboat Scenario. In this scenario, no matter how fast or extreme the reductions in GGE due to economic collapse, we still end up in the climate cooker, but with only the capacity for very local, household and communitarian organisation.

If the climate crisis is already happening, and as suggested in *Future Scenarios*, the primary responses to the crisis increase rather than reduce GGE, then it is probably too late for any concerted effort to shift course to the more benign Green Tech energy descent future. Given that most of the world is yet to accept the inevitability of Energy Descent and are still pinning their faith in "Techno Stability" if not "Techno Explosion", the globally cooperative powerdown processes needed to shift the world to Green Tech look unlikely. More fundamental than any political action, the resurgent rural and regional economies, based on a boom for agricultural and forestry commodities, that structurally underpins the Green Tech scenario, will not eventuate if climate change is fast and severe. Climate change will stimulate large investments in agriculture but they are more likely to be energy and resource intensive, controlled climate agriculture (greenhouses), centralised at transport hubs. This type of development simply reinforces the Brown Tech model including the acceleration of GGE.

While it may be too late for the Green Tech Scenario, it still may be possible to avoid more extreme climate change of a long drawn out Brown Tech Scenario before natural forcing factors lock humanity into the climate cooker of 4-6 degrees and resource depletion leads to a collapse of the centralised Brown Tech governance and a rise of local war lords (Lifeboat Scenario).

The novel structural vulnerabilities highlighted by David Korowicz, and the unprecedented extremity of the bubble economics highlighted by Nicole Foss suggest the strong tendencies towards a Brown Tech world could be short lived. Instead, severe global economic and societal collapse could switch off GGE enough to begin reversing climate change; in essence the Earth Steward scenario of recreated bioregional economies based on frugal agrarian resources and abundant salvage from the collapsed global economy and defunct national governance structures.

NESTED SCENARIOS

Perhaps the greatest ah-ha moment from participants in *Future Scenarios* seminars has come with my explanation of the following slide.

Nested Scenarios (by scale of related system)



Each scenario has a characteristic scale energy density and organisational power. It is natural for national governments and corporations to respond to energy descent with massive infrastructure and energy projects and policies, that fit the Brown Tech scenario. Similarly it is natural for families to think about food supply and personal security, reflecting the Lifeboat scenario. Between these two extremes many mainstream environmental strategies that suggest a Green Tech future are most effectively being applied by medium sized business and city or state governments, while many classic permaculture strategies that are emblematic of the Earth Steward scenario can be best applied by small business and local communities. To some extent all scenarios are emerging simultaneously and may persist to some degree into the future, one nested one within another.

CRASHING THE OPERATING SYSTEM OF THE GLOBAL ECONOMY

The evidence that the global financial system is a not-so-slow moving train crash is getting stronger. That investors and the billion or so middle class people who have any savings and discretionary expenditure are losing faith, might be an understatement. It may be that paralysis and inertia is all that is holding the system together.

A collapse in credit could make it very difficult to raise the finance necessary for the ongoing extraction of tar sands, shale gas and other mad resource extraction projects that are accelerating the production of GGE. A deflationary spiral that follows from a credit crisis and collapsing asset (housing, etc.) values could change behaviour to the extent that people stop spending on anything but essentials because of job insecurity and the fact that everything will be cheaper next month.

I believe the chances of global economic collapse (in the next five years) being severe enough to achieve this have to be rated at least 50%. Further I believe many climate activists and policy professionals are shifting to at least privately hoping this might be the case because the chances of a planned powerdown seems to be fading.

If we accept a global financial crash could make it very difficult, if not impossible, to restart the global economy with anything other than drastically reduced emissions, then an argument can be mounted for putting effort into precipitating that crash, the crash of the financial system. Any such plan would of course invite being blamed for causing it when it happens. No one wants to be strung up along with the bankers for causing a global version of Greece, Egypt or many other countries, let alone the horrors of Syria. On the other hand, we have no precedent to indicate how bad conditions might be in currently affluent countries.

The picture I am building is that it is almost inevitable that those who warn of the crisis will get the blame for causing it. So if we are going to be blamed anyway, we could be proactive about it and at least get the advantage for humanity of crisis now, rather than later. For the people of Syria caught in the grip of climate, energy and geopolitical struggle, all this hardly matters because it couldn't get worse for them. In fact conditions in such stricken places could actually improve if global superpower competition is disabled by the collapse of the global finance. Even the average citizen in Greece or Egypt might be hoping to see the remaining affluent countries get a 'taste of their own medicine'. The complexity of global human overshoot, so long predicted, and now unfolding, is far too multifaceted to be captured by any simple story about good, innocence, evil and blame.

Before considering whether this is a good idea or not, I want to consider whether concerted action by limited numbers of activists could bring it about?

Given the current fragilities of global finance, I believe a radical change in the behaviour of a relatively small proportion of the global middle class could precipitate such a crash. For example a 50% reduction of consumption and 50% conversion of assets into building household and local community resilience by say 10% of the population in affluent countries would show up as 5% reduction in demand in a system built on perpetual growth and a 5% reduction in savings capital available for banks to lend. Small fluctuations in the supply-demand balance can have a massive effect on prices. Further, when the system has been growing due to rising debt, arguably for decades, then the vulnerability to drops in demand can be massive. For example, small drops in demand for new houses and the high fuel costs of commuting for those servicing mortgages, triggered the collapse of the housing bubble in the USA and other countries.

It seems obvious to me that it is easier to convince a minority that they will be better off by disengaging from the system than any efforts to build mass movements demanding impossible outcomes or convincing elites to turn off the system that is currently keeping them in power.

I accept that many people find the idea of assisting economic collapse abhorrent, even if that collapse is becoming more and more likely as a collective outcome of human actions. Daryl Taylor uses the caring metaphor “hospicing and euthanasing” the old/dying system along with “doula-ing and midwifing the new/emerging system. Whatever the metaphors, climate activists who believe we are on the verge of runaway catastrophic climate change that will be far worse than simply stalling the economy, do have options other than shouting louder for mitigation or shifting to adaptation and defence. Rather than simply planning for bad and rocky energy descent delivered initially by economic depression, they could choose to focus their energy on actively trying to destroy faith in the financial system.

MAINSTREAM ENVIRONMENTAL TACTICAL SHIFT

This may seem like a mad idea from a fringe radical, but I think there is evidence that the most mainstream elite of the climate policy community may effectively be pursuing a strategy that is very similar. Environmental activists have for some years now been targeting investors in coal, tar sands, shale oil and gas and other disastrous energy developments with some signs of success, or at least more than has been achieved by lobbying politicians. The fact that many of these investments are based on bubble economics should be evident to investors anyway, but with so much money sloshing around the global financial system in search of investments which are safe and promise a reasonable return, behaviour of investors becomes more erratic and irrational.

A report from Carbon Tracker and the Grantham Research Institute, *Unburnable carbon 2013: Wasted Capital and Stranded Assets*, suggests that 60-80% of the oil, gas and coal reserve on the books of the global energy companies could be stranded assets. 4 trillion dollars in share values and 1.27 trillion in debt could be worthless if governments take seriously their commitments to avoid dangerous climate change. This is a recent prominent example of climate policy work attempting to undermine financial investment in the fossil fuel industries. It seems to me what they are saying was intended to be a warning to investors, to pull their money out because it is too big a financial risk. The strategy behind such a report might be to encourage an investment flow out of fossil and into renewable energy projects. However, if investors did this very fast, it could destabilise global commodity and financial markets so much that it precipitates the collapse of global finance, and I suggest, also brings down greenhouse gas emissions.

INVESTMENT AND DIVESTMENT

Similarly, the efforts by permaculture, transition and related activism to build local resilience, may result in convincing people that they should get out of debt, downsize, and radically reduce consumption and put their savings into concrete assets that build local capacity, as rapidly as possible. Nicole Foss’s message is specifically targeted to this end and I have seen it lead to people making radical changes to their financial affairs, which all the evidence of climate catastrophe never did. As Foss explains, when most of the so-called wealth evaporates, the public is left holding the empty bag of worthless assets, a process that is well underway in Europe and the USA. Her message is targeted to help the very people who are most motivated and able to make a positive contribution in the energy descent future. If these people can survive and thrive through the very short-term

bottleneck of deflationary economic collapse, then they may be able to exercise a very positive influence on the systems that emerge following the collapse. This strategy is a very altruistic one, one I have supported publically.²²

There have always been strong ethical, strategic and practical grounds for permaculture and transition activism to focus on the simultaneous withdrawal of assets from destructive centralised systems and the reinvesting of them in household and community economy development. In Australia, the shift in the early 1980s of ethical investment from avoiding tobacco and arms manufacturers, to taking more proactive investment choices was influenced by permaculture activism.

As climate activists use the power of divestment as one of the few prospects for leveraging rapid change away from coal and other fossil fuel industries, it might be useful to show how this might fit into a more holistic framework for investment and divestment informed by permaculture principles.

Firstly, divestment must always be balanced by a conscious plan of re-investment that doesn't simply recreate the problems in a new form. As with the Jevons paradox, there are many examples of rebound effects. For example savings on power bills with solar power leading to more frequent overseas holidays by aeroplane.

Secondly, investment is not just of money, but our time, skills and assets. Often it is these non-monetary assets that can be most effectively put to good work, while our finances are tied up in systems that are causing the very problems we wish to avoid.

Thirdly the investment mentality assumes a return, but in a deflationary world, capital asset protection is more important than any expectation of a return. The accepted wisdom of not putting all eggs in one basket, becomes more important in an uncertain future.

Apart from any framework to characterise what we should invest in (e.g. renewable rather than fossil energy), the most powerful shift occurs when we extract resources from the top of the global financial food chain and reinvest at the most local level.

In Energy Descent Action Planning²³ we wrote;

In pre-industrial society the non-monetary economies of the household and community, based on love, reciprocity, gift and barter, were the bulk of the economy and energy descent will see a rapid expansion of these economies from the current very low base. Rural communities that have retained more of these non-monetary economies and have better access to non-monetary resources from nature (water, firewood, food, etc) are in a better position to benefit from energy descent than urbanised communities.

And we used the following diagrams to visualise the shift in economies;

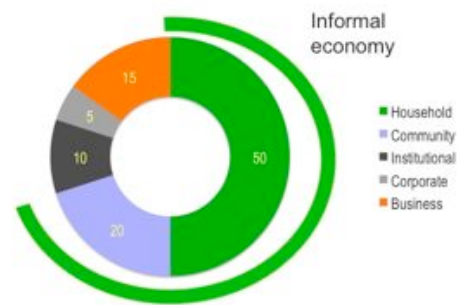
²² Talking up the risks of the centralised food system has always been the flip side of my promotion of household and local food production to kickstart community resilience. For example see footage included in *Anima Mundi*, a film by Peter Downey (<http://holmgren.com.au/product/anima-mundi-dvd/>)

²³ *Energy Descent Action Planning Discussion Paper*; report by David Holmgren and Ian Lillington to the Environmental Sustainability Advisory Committee of Hepburn Shire Council September 2011.

Formal and informal economic sectors at Energy Peak (overshoot)



Formal and Inform economic sectors in Energy Descent



Affluent nations have a long history of extracting wealth out of the informal household and community economies to bolster growth in the formal economies, but we have little experience in proactively reversing the process.

Recognising the differences between at least three domains of financial control can help evaluation investment and divestment strategies and options.

1. Corporate and government finance and transactions through the banking system,
2. NGO, business and individual finance and transactions through the banking system
3. Cash transactions that are restricted to individuals and small businesses

The highest level is corporate and government financing. Getting money out of this sector and into businesses and NGOs controlled by “natural persons “ is a step in the right direction. Corporations are cost minimising, profit maximising organisations, designed like machines to suit the scale and density of fossil fuel. In the energy descent future corporations will be less adapted but in the Brown Tech scenario where power shifts from the global to the national level, corporations will remain the primary tools by which strong national governments will implement radical, and where necessary, unpopular policies. Corporations only respond to legal constraint and mass-market forces. Where we invest in larger scale organisation for complex functions, cooperatives are inherently more subject to ethical and democratic influence than corporations.

Natural persons, and businesses fully controlled by natural persons, are, unlike corporations, potentially subject to ethical influence and action other than short-term cost minimisation and profit maximisation. This potential will be critical to breaking the trance created by the current mal-adapted convergent systems. Even more importantly, individual entrepreneurs perusing divergent and even idiosyncratic risk taking are essential to deal with a world of rapid change and uncertainty.

When we hold money as cash we risk theft and lose value due to inflation, but in an energy descent world of deflation, cash is king and avoids the risk that the largest financial institutions will fail or be subject to arbitrary laws that confiscate savings²⁴. Withdrawing money from banks and holding relatively large amounts of cash, is one of the easiest actions ordinary citizens can take to increase their own resilience and divest their support for corrupt and dysfunctional systems. When we hold

²⁴ Such as already happened in the Cypriot banking crisis

and spend cash in the grey economy we stimulate the most resilient part of the monetary economy that will best survive and even thrive in a deflationary economy.

The cash economy cuts out corporations and government tax, which of course reduces money available for public services, that we might otherwise think are progressive. But if we accept the thesis that the system cannot be reformed sufficiently to avoid climate catastrophe, then withdrawing support may be a necessary evil. A surprising and increasing number of citizens already have such a negative view of big government, business and banks, that willingness to use the cash economy is hardly a radical perspective even if it is very rare for it to be publically advocated by “serious commentators”.

ALTERNATIVE CURRENCIES AND NON-MONETARY ECONOMIES

When we convert money out of fiat currencies²⁵ and into local and alternative currencies (and to a limited extent, precious metals) we further spread risks, encourage local economy and reduce reinforcement of centralised dysfunction. While precious metals and local currencies have a long history of growth in times of mainstream economic contraction, virtual currencies such as Bitcoin represent global wildcards that expand the threats to fiat currencies. Whether virtual currencies create a brave new world of peer-to-peer²⁶ inflation proof money independent of governments and banks remains unclear, but they do diversify the transaction options and reduce risks from financial instability for proactive citizens taking control of their finances.

The direct exchange of goods and services in barter is often seen as clumsy and inefficient, but it can build far stronger relationships than any monetary exchange. When it works well, barter creates a sense of serendipity, and builds confidence that we have something of value and that we can find what we need.

The gift economy is even more potent despite the superficial impression that gifting brings no rewards. In all traditional societies gifting increased the social status and often the real power and security of the giver. In addition, it functioned to redistribute wealth and provide a social safety net. Even in affluent modern societies these functions can be recognised and in a contracting economy, gifting of surplus food, seed and garden tools (for example) to hard up people could help kick start community economies at the same time that it builds trust, support networks and social insurance in insecure times.

LABOUR AND SKILL VS FOSSIL FUEL AND TECHNOLOGY

Another lens for framing expenditure is to preference employing labour and skill over fossil fuel and technology. In affluent economies with high wages, we have a long history of believing it is always cheaper to preference fossil fuels and technology over labour and skills but in the energy descent future this will not be the case. By shifting our behaviour now, we stimulate needed economic transition and deprive the largest corporations of the growth they must have to survive.

²⁵ Government backed national currencies that are not underpinned by precious metals or other material resources of real value. Fiat currencies depend on faith that the government can guarantee their value.

²⁶ Peer to peer networks that contrast to heirarchical server-client networks (in IT) have become models for a wide range of initiatives identified through the P2P Foundation, including alternative currencies. See

<http://p2pfoundation.net/Category:Money>

When we buy direct from farmers, a higher proportion of the money goes to the farmer and his/her labourers and less to transport, packaging and retailing corporations that maximise the consumption of resources and minimise the employment of people. When we pay a self-taught computer wiz to fix our machine rather than buying a new one, we encourage the growth of skills essential to the energy descent future and deprive computer corporations of sales they need to perpetually grow. When we pay a contractor to dismantle a building rather than demolish with an excavator, we support the employment of more labour in dismantling and reuse, create less land fill, use less fossil fuel and demand less investment in expensive machinery manufactured by global corporations.

This very brief exploration suggests investment and general spending can work as a systemic boycott of centralised dysfunctional systems that are driving climate change and at the same time stimulate the emergence of the very systems that are adaptive to energy descent while minimising GGE.

BROWN TECH POSSIBILITIES

Permaculture, Transition and voluntary simplicity have always involved personal and community empowerment, ethical concern for others and rebuilding nature. These motivations remain valid but if we are moving into a Brown Tech future, then the urgency for more radical action to build parallel systems and disconnect from the increasingly centralised destructive mainstream is a logical and ethical necessity whether or not it contributes to a financial collapse. In *Future Scenarios* I characterised the politics of the Brown Tech world as 'fascist states' where the divide between the haves and the have nots increase, and where the tension for activists between working within the system and supporting the marginalised, and those pursuing autonomy, will become much more extreme.

In workshops on the scenarios and in public talks, I illustrated this conflict with the example of a possible choice between an ID card giving us rationed access to government backed supermarket monopolies or taking our chances in the feral food economy of home grown and fringe farmers markets. At present we have the luxury of playing with the latter while the former is still freely accessible. The shifts towards authoritarianism and a surveillance state since '9/11', and the recent intensification of the cyber wars between the state and transparency activists, suggests we may have a small window of opportunity, to build these alternative systems before a combination of state and corporate power (fascism) becomes more draconian in protecting their business model in a world of economic contraction.²⁷

Most of the shrinking numbers of middle class citizens in overdeveloped countries will probably continue to throw their lot in with the declining comfort and remaining privileges the system provides. The fact that the majority of the Japanese people were against nuclear power but nevertheless voted in a government committed to restarting the nuclear program, is a good example of the pattern. The attitude of the majority of Australians (some of the richest people in the world) to refugees who arrive by boat is another example. Perhaps the most relevant of all is the apparent acquiescence of the majority to the rapidly expanding surveillance state, highlighted by the Edward Snowden revelations.

²⁷ Italian Fascist dictator Benito Mussolini is said to have said "Fascism should more appropriately be called Corporatism because it is a merger of state and corporate power."

On another front, if the pattern of worsening bushfires in south-eastern Australia continues, it seems inevitable that the response of governments will be resettlement of people from fire prone communities into 'safe' towns and cities. Those who refuse to move will probably have to cope without mains power (closure of the single line earth return systems) as well as no fire-fighting services, and so on.

The response of governments to severe bushfires and other recent natural disasters, as experienced and documented by permaculture and community activist Daryl Taylor, suggest the stress to survivors of the 'top down' government-sponsored recovery processes can be worse than the natural disaster itself, for a significant percentage of survivors of any disaster who become empowered by the experience.²⁸ Empowered survivors of disasters and crises have the potential to catalyse community rebirth rather than accept the stifling palliative care delivered by the system. Consequently they are treated as a threat to the bureaucratic and corporate order.

While embracing self-organisation, Taylor emphasises the need for disaster-vulnerable communities to enact defensible community regeneration decision-making structures, at the sub-local government authority level, as a key disaster-crisis preparedness strategy. For him, household and neighbourhood self-reliance, mutual self-help, and sharing economy strategies are critical for community renewal, as are new participatory democracy and subsidiarity governance²⁹ practices.

Meg Wheatley and Deborah Frieze are documenting how communities are leading this 'Walk Out, Walk On' shift – from tier-upon-tier 'parent-child' globalising dynamics, to peer-to-peer 'agentic adults' trans-localisation collaborations.³⁰

These expressions of the Brown Tech world will be interpreted by many as problems that need to be corrected by sensible reforms based on the evidence, while others will see them as dysfunctional outcomes of corrupt power elites of failing empire, that need to be swept away by radical mass movements. There may be some truth in both positions, but these symptoms also reflect the residual structures of majority politics and multi-generational mass affluence in an era of stagnation and contraction. As the crises worsen, the public will, and already is, demanding that governments fix the problems. As elites lose their religious faith in the markets' ability to solve all problems, it is inevitable that governments will struggle to relearn their functions through erratic and arbitrary exercise of paternalistic power. Much of this will be well intentioned and even reduce suffering in the short term.

ACTORS AT THE FRINGE

While the majority may gain some real or imagined comfort from many of these actions of governments, those of us at the fringes, trying to create more resilient household and community economies, will experience them as a greater threat than the contracting economic conditions and worsening natural disasters. Without apportioning blame, I believe it is essential that those of us who cannot live in the stifling constrictions of a failing system, must work hard while we can, to build the parallel systems that might provide some alternative to the strictures of the Brown Tech world. If the logic of the *Future Scenarios* stepwise descent is true, the Brown Tech world could be

²⁸ See *How the Kinglake Ranges Community is building resilience in the aftermath of disaster* (pdf) by Darryl Taylor and Lucy Filor. <http://www.ourcommunity.com.au/files/cic/DarylTaylor.pdf>

²⁹ See: *Participatory Budgeting* <http://www.participatorybudgeting.org/>
Gaian Democracies <http://www.gaiandemocracy.net/> and
Liquid Democracy http://p2pfoundation.net/Liquid_Democracy_as_starting_points

³⁰ See: *Walk Out, Walk On* website <http://www.walkoutwalkon.net/> and book for case studies

one that persists for many decades, before degenerating to the Lifeboat Scenario, which spreads from the wild hinterlands to flood the remaining urban centres of the command economy.

If there are few of us following the path of frugal autonomy, then we must expect to live as a marginalised minority, but hopefully with our freedom intact as we prepare to enable our descendents, biological and otherwise, to both survive and preserve something of long term cultural value during the long descent.

If we succeed in rapidly building effective alternatives at exactly the same time that the strictures of the stressed mainstream become apparent to more people, then we could see so many people join the informal household and community economies, that the loss of worker/consumers in centrally controlled systems leads to a more rapid collapse. The resultant massive reduction in GGE might still save the world from the worst of climate chaos. The precipitous nature of the collapse would be a massive psycho-social shock, but ameliorating factors might allow a rebuilding, based on more humane and ecological principles than are unlikely to be dominant in either the Brown Tech or Lifeboat worlds. A relatively benign climate change would provide a basis for a recovery of 'garden agriculture' and wild foraging, while salvage of the leftovers from industrial assets and infrastructure would provide material needs through creative reusing and recycling; i.e. the essence of the Earth Steward Scenario in which a frugal communitarian culture based on ecological principles would be the mainstream rather than the fringe.

While the Earth Steward Scenario has many positive aspects, it is only likely to emerge through a path of great loss and suffering. Whether that suffering will be any greater than what the world is enduring already, from the dying stages of Pax Global Capitalism cannot be known. And if the elites of the resurgent resource nationalism and command economies of the Brown Tech world do protect people from the worse impacts of that transition they will do it by accelerating the resource depletion at the cost of climate chaos, causing more pain and suffering in the longer term.³¹

NOT FINANCIAL TERRORISTS

These bleak prospects need to be balanced by the incredibly positive results that come from permaculture, Transition Towns, and related activism. As I explained in the contribution to a debate in Australia's *Arena* magazine in 2013, these expressions of positive environmentalism, autonomy and community building have the advantage of being primarily driven by enlightened self interest to build personal, family and community resilience, rather than a desire to save the world or atone for our own, or our forebear's, sins. A permaculture way of life empowers us to take responsibility for our own welfare, provides endless opportunities for creativity and innovation, and connects us to nature and community in ways that makes sense of the world around us.

We generally don't articulate permaculture as a political strategy or movement but reflecting the principle of multiple functions, permaculture strategies have powerful political impacts that have several advantages over conventional political action that focuses on getting those in power to pull the right levers.

³¹ For a very realistic portrayal of the Brown Tech world and a utopian Earth Steward community see Brian Love's new novel *Entheogenesis* <http://holmgren.com.au/product/entheogenesis/>

In my comments to Arena³² I supported permaculture activism as having political efficacy in the following way.

“I am more than ready to acknowledge that ‘our’ collective efforts at positive environmentalism during and since the 1970s have so far failed to catalyse the necessary changes in society, but Andy Scerri’s assertion that composting your private garden counts for nothing, reflects an ignorance of several structural and systemic factors driving and constraining social change.

Firstly if the changes or innovations required, do not confer some advantage to the innovators and early adopters then there is little incentive for others to follow their lead.

Secondly, unless the necessary changes or innovations can be independently adopted by individuals, households and local communities, without the resources, support and approval from central authority, then it can always be blocked by established interests that stand to lose by its widespread adoption.

Thirdly, it is extremely difficult, if not impossible, for higher order organisations and governments to mandate a reality that doesn’t already exist as working models.

Progressive and integrated adoption and refinement of the myriad of strategies and techniques associated with permaculture, enacted at the household and local level, addresses all three systemic issues.

Permaculture, Transition Towns and related positive environmental activism, have spread through personal, small scale entrepreneurial and community actions so readily because they bypass these three systemic blocks to a creatively designed energy descent pathway. This spread has happened with only marginal and indirect support from governments, corporations and even NGOs.

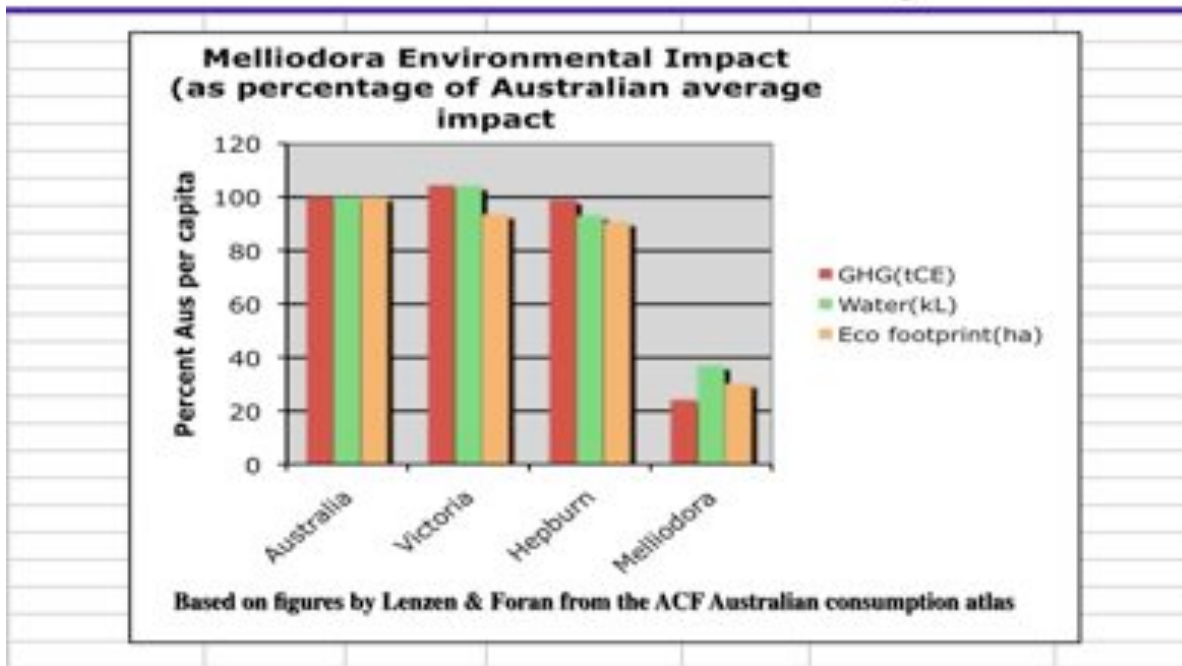
Because permaculture is a highly integrated multifaceted example of positive environmentalism it also has the effect of a systemic boycott of centralised fossil fuel powered economics dominated by corporations. When seriously applied at the household and community level it undermines centralised debt-based economies, including the tax base of governments. Application of permaculture and associated voluntary simplicity principles over decades by committed households can lead to reductions in consumption and greenhouse gas emissions of greater than 50% with up to 80% possible.³³

³² See *Household economy counts* for the full text.

<http://holmgren.com.au/household-economy-counts-full-text/>

³³ At Melliadora we are managing to operate an extended household economy and globally connected small business at less than 25% of the Australian average GGE (purely as a byproduct of applying permaculture principles and without accounting for any carbon sequestration from decades of tree planting and land management).

Does permaculture design & living reduce environment impact?



The nested future scenarios concept highlights the importance of household and local community strategies whether or not larger scale systems collapse. Those (permaculture) strategies are effective at the local and household scale, while the ones promoted to us by the upper levels of power (eg upgrading the light bulbs) are weak and tend to further undermine our resilience and autonomy.(eg centralised disaster management systems) This understanding can save us spending too much emotional energy focused on which scenario will win out in the end.

It also reminds us that the emerging Brown Tech world arises out of the level of available energy more than evil intent by global and national elites. If larger scale systems do fail due to greater self-reliance and resilience at the local and household level then that exposes the degree of overreach and instability in those larger systems, not the impact of radical relocalisers trying to destroy the system.

CONCLUSION

Mass movements to get governments to institute change have been losing efficacy for decades, while a mass movement calling for less seems like a hopeless case. Similarly boycotts of particular governments, companies and products simply change the consumption problems into new forms.

I believe that actively building parallel and largely non-monetary household and local community economies with as little as 10% of the population has the potential to function as a deep systemic boycott of the centralised systems as a whole, that could lead to more than 5% contraction in the centralised economies. Whether this became the straw that broke the back of the global financial system or a tipping point, no one could ever say, even after the event.

Discussing such possibilities may be counterproductive and may brand us as crazy people, a doomsday cult or even terrorists. Maybe it is better to keep focusing on the positive aspects of

these bottom up changes that are acceptable to the average citizen; better physical and mental health, more fun and empowered children who can survive and thrive in a world of dramatic transformation, while minimising our contribution to harm to nature and others.

On the other hand, bringing these issues out in the open might inspire desperate climate and political activists to put their substantial energy into permaculture, Transition Towns, voluntary frugality, and other aspects of positive environmentalism. It just might stop the monster of global growth after all other options have been exhausted. Rather than spurning financial system terrorists, we would welcome the impacted and vulnerable to the growing ranks of terra-ists³⁴ with their hands in the soil.

³⁴ A term suggested by deep ecologist John Seed after hearing me float these ideas in a public forum in 2013.