

setting the pace of change in the world through change in the home

We live in a consumer society, almost everything is decided on the basis of how it will appeal to the consumer. Even our politics is effectively decided this way. We are failing to get adequate speed of change because we are appealing to decision makers before we have got their constituencies to demand it. This is not how democracy or consumerism work. If we reverse that dynamic, history says we will see a cascade of change.

Once politicians see their electoral future this way, once goods and service providers see where their sales advantage will be, only then might we achieve the paradigm shift required to deliver our share of emissions reductions required to stabilise global climate change.

We can direct the taper out of endless growth economics into something more tenable in this new paradigm through this process of change and so underpin a long term environmentally, socially and economically sustainable change.

Our area of concentration is the home. Homes are responsible for 26% of our emissions, moving stuff and us around 24% business 43% public 5% and agriculture/forestry etc 2% .

There is a cascade to be created here. The principle of decimation suggests that if we decimate the carbon emissions from homes by retrofitting one in ten, we will normalise this level of change. It will become a cultural aspiration initially, catalysing wider expectations for those who have made the change in their homes.

1. 80-90% reductions in energy demand from homes is feasible for pioneers now

From our work in the TSB's Retrofit for the Future program and DECC's Go Early program

we have proved that through radical fabric-first demand reduction we can get homes down to total primary energy demands of <120kWh/m²A⁻¹ emissions of <17kWh CO₂/m²A⁻¹ for about £39,000.

2. Energy price rises will increase the attraction of radically reducing its use

As energy prices continue to rise we will soon reach parity on both PV and Retrofit, PV prices already challenge the conventional assumption about orientation having to be due south and latitude. Energy prices will continue to rise over the coming decades, 7%/A for the last decade.

3. Supply chain improvements and increased volume reduce prices

Demand reductions this large are still a fringe industry, so volumes of materials are not optimised. Details are still being worked out, methods of application improved. Research carried out in 2011 suggest that a 50% reduction in cost may be feasible over the next 10-15 years

This will soon make the process more attractive for the less extraordinary consumers.

4. Self-learning systems and monitoring can speed up evolution of best practice

Data needs to be collected from almost every installation and collated with the methods and details used, feedback from contractors, designer and householder. Data needs to be shared to maximise reach. This will enable measures evolve at speed, successful measures then redeployed and so precious time is not wasted on less useful or simply inappropriate technologies that don't deliver the results.

5. Small power needs can not reduced by 80% so require decentralised generation, currently PV

So far we have found that almost all houses can accommodate PV, the average on our houses

so far is 3.28kW. Allowing for flats, even if we assume an average of 3kW of PV this produces a generation capacity of 66tW of PV generation capacity producing about 75% of the non-heat electrical needs of a UK household.

6. PV becomes a substantial contributor to a future energy mix provided by renewables if there is also decentralised storage

Technology exists to use the batteries of electric vehicles instead of static large single purpose storage systems as the means to buffer and smooth out supply from intermittent renewable supply and domestic demand. Web connected charging points would allow for appropriate billing and repayments to make this work for individual owners of both car and PV array.

7. Retrofit on this scale requires financial delivery to be radically overhauled

This project could cost nearly £500billion. Cost of finance needs to be radically reduced, availability radically increased. This can be done by shortening or closing finance loops, short enough so that savers can simply see returns of 3.5-4% on their savings instead of 1-1.5%. Short or closed loop financing allows people to see the work their pension funds are doing in their communities, not in the tar sands of Alberta, further encouraging participation.

This would also demonstrate a model of economic activity predicated on low or even zero growth, a target if we are to reframe capitalism for a viable future.

8. Trusted, transparent, accountable community organisations are need to act as intermediary aggregators

We have helped set up Carbon Co-op as just such an organisation. It has so far delivered more pay-as-you-save loans than any of the country's Green Deal providers, supporting households through the process of change and putting them in charge of it.

9. Retrofitting homes this way will turn ordinary consumers homes into enlightened ones

This will precipitate a demand for other change in how their key services are delivered, leading to a consumer-led demand for change. Businesses that only deliver lip-service instead of actual change will see their market share reduce. This will create an economic imperative to change more familiar to the current economic models while further change is more gradually assimilated.

Participation in renewable generation will ensure that objections to its greater roll out will be better calibrated relative to other less crucial concerns.

10. We would be able to demonstrate global leadership from one of the world's top 10 economies

While politically we are nowhere near as powerful we'd love to think we were, more of the world is influenced by our consumer demand and attendant culture. As we achieve a cultural shift here in the UK we have a better chance than many nations of this having influence more widely.