The emission case for a Radical Plan

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My headline conclusion:

Avoiding “dangerous climate change” (stabilisation at 2°C) remains a feasible goal of the international community

*just*

... with economic *(oikonimia)*, but not financial *(chrematisitc)*, benefits
Fredag in Stockholm: IPCC science report released

- Offered neither surprise nor solace to our fossil-fuel hungry world

- The science message for policy-makers, business leaders and civil society has changed very little during the last twenty years

- Small adjustments and refinements have occurred – but this is a mature science
So what has changed?

- An additional 200 billion tonnes of CO$_2$ pumped into the atmosphere since last report (AR4 2007)
- Annual emissions ~70% higher than at time of the first report in 1990
- Atmospheric CO$_2$ levels higher than during past 800 thousand years
Yet we repeatedly recommit to:

… make our *fair* contribution to…

“To hold the increase in global temperature *below 2 degrees Celsius*, and take action to meet this objective consistent with *science* and on the basis of *equity*”

Copenhagen Accord, 2009
... but why radical reductions in energy demand?

Surely...

*we can deliver 2°C mitigation through low-carbon energy supply?*

... in 2013, it’s all about timing!
Thinking about this ‘graphically’
UN Climate change panel established
RIO Earth Summit

Carbon dioxide from fossil fuel & cement (GtCO2/yr⁻¹)

YEAR

GCP new data
UN Climate change panel established
RIO Earth Summit
Royal Commission (60% by 2050)
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GCP new data
... despite economic downturn, emissions continue to rise
5% in 2010; 2-3% p.a. since.
Pre-recession rate 3.5% p.a.
... so what of future emissions?
Energy system design lives (lock-in)

- Power stations
- Large scale infrastructures
- Built environment
- Aircraft & ships

30-100 years
Extrapolation of 3.5%, 3, 2, 1% ...

(i.e. globalisation + unconventional fossil fuel & late transition to low carbon energy)
Extrapolation of 3.5%, 3, 2, 1% ... (i.e. globalisation + unconventional fossil fuel & late transition to low carbon energy)
c.f. highest IPCC’s emission scenarios
RCP8.5 is 2% p.a. growth from 2020
(i.e. 1.5% below pre-recession rate)
... but are such rising emissions realistic?

Consider the UK (a leading nation on CC?)
- Tax breaks for shale gas development
- Chancellor proposes 37GW of unabated CCGTS
- Highest investment ever in North Sea oil
- Reopening of Scottish coal mines
- Expanding aviation & more ports
- Emission standards for cars watered down
- Rejected 2030 decarbonisation target
- Plan to remove ‘green’ taxes from energy bills
- Supporting Arctic exploration for hydrocarbons
- Opened a consul office in Alberta (tar sands)
>2500 GtCO₂ for 2000 to 2050
5000 GtCO₂ for 2000-2100
Yet for a 66% chance of <2°C can emit only 1000GtCO₂ (AR5)
... and no emissions after 2034 for RCP8.5
So recent history supports the IEA view

... that the CO$_2$ trend “is perfectly in line with a temperature increase of 6 degrees Celsius, which would have devastating consequences for the planet.”

Fatih Birol - IEA chief economist
... but what about 2°C?
Carbon dioxide from fossil fuel & cement (GtCO2yr⁻¹)

- 4°C to 6°C
- ~66% chance of 2°C
Too early for new low carbon supply
Reduce demand & supply
But this is a global analysis
“To hold the increase in global temperature below 2 degrees Celsius, and take action to meet this objective consistent with science and on the basis of equity.”
Assuming poorer (non-Annex 1) nations:

1. Collectively peak their emissions by 2025

2. Reduce thereafter at 6-8% p.a.
... then, for 2°C, wealthy (Annex 1) nations require:

At least 10% reduction in emissions year on year, i.e.

- 40% reduction by ~2018 (c.f. 1990)
- 70% ~2024
- 90% ~2030

i.e. **RADICAL EMISSION REDUCTIONS**
Is this viable?

… or is 4°C, 6°C or more a better option?
Hypothesis: yes it is viable

**Equity:** a small group have to make radical & early reductions

40-60% of emissions from 1-5% of the population

**Technology:** demand side can deliver early & large reductions

*an A++ rated fridge uses ~85% less energy than an ‘A’ model*

**Growth:** there are alternative measures of a good life

*above a threshold GDP is a poor proxy for welfare*
A Radical Plan

... low carbon energy supply can’t be built in time for 2°C, but...

- Radical reductions in energy demand over one decade are possible
- Carefully planned this could deliver radical & early emission reductions
- Extending the window for transitioning to low carbon energy supply
A Radical Plan – 2 phases

1. Radical reductions in energy demand from now to ~2030

2. Marshall plan to build 100% low-carbon supply by 2030-40
To finish, a message of hope …

“at every level the greatest obstacle to transforming the world is that we lack the clarity and imagination to conceive that it could be different.”

Robert Unger
Thank you

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