

An aerial night view of a city skyline, likely London, with numerous buildings illuminated. A prominent skyscraper with a grid-like facade is visible on the right side. The sky is a deep blue, and the city lights create a warm glow against the dark background.

From rhetoric to reality
Facing the challenges of climate change

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Presentation to the Economic Scrutiny committee – May 2013

The **Global** context of Climate Change

... the IEA view

“When I look at this [CO₂] data, the 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

... and according to the World Bank, at just 4°C

"There will be water and food fights everywhere,"

Jim Yong Kim – WB president

So what of the **UK**?

Copenhagen Accord et al & G8 Camp David (2012)

UK has committed to make its 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**”*

The UK Low Carbon Transition Plan states ...

“ to avoid the most dangerous impacts of climate change, average global temperatures must rise **no more than 2°C** ”

So what of **Manchester**?

GM's Climate Change Strategy

“ Greater Manchester intends to make its contribution to the targets set in the ... **UK Low Carbon Transition Plan** ... [t]his is the right thing to do as part of the global effort to combat climate change ...”

“ Radical action on carbon emissions is needed in order to pass a **viable and safe** climate onto future generations ...”

“2020 ... target of CO2 emissions reduction [of] **48%**” (c.f. 1990)

MACF-refresh “**Headline Objective ... 41% by 2020**” (c.f. 2005)

Manchester's **mitigation** question is clear

What **emission reductions** give a good chance of staying below 2°C?

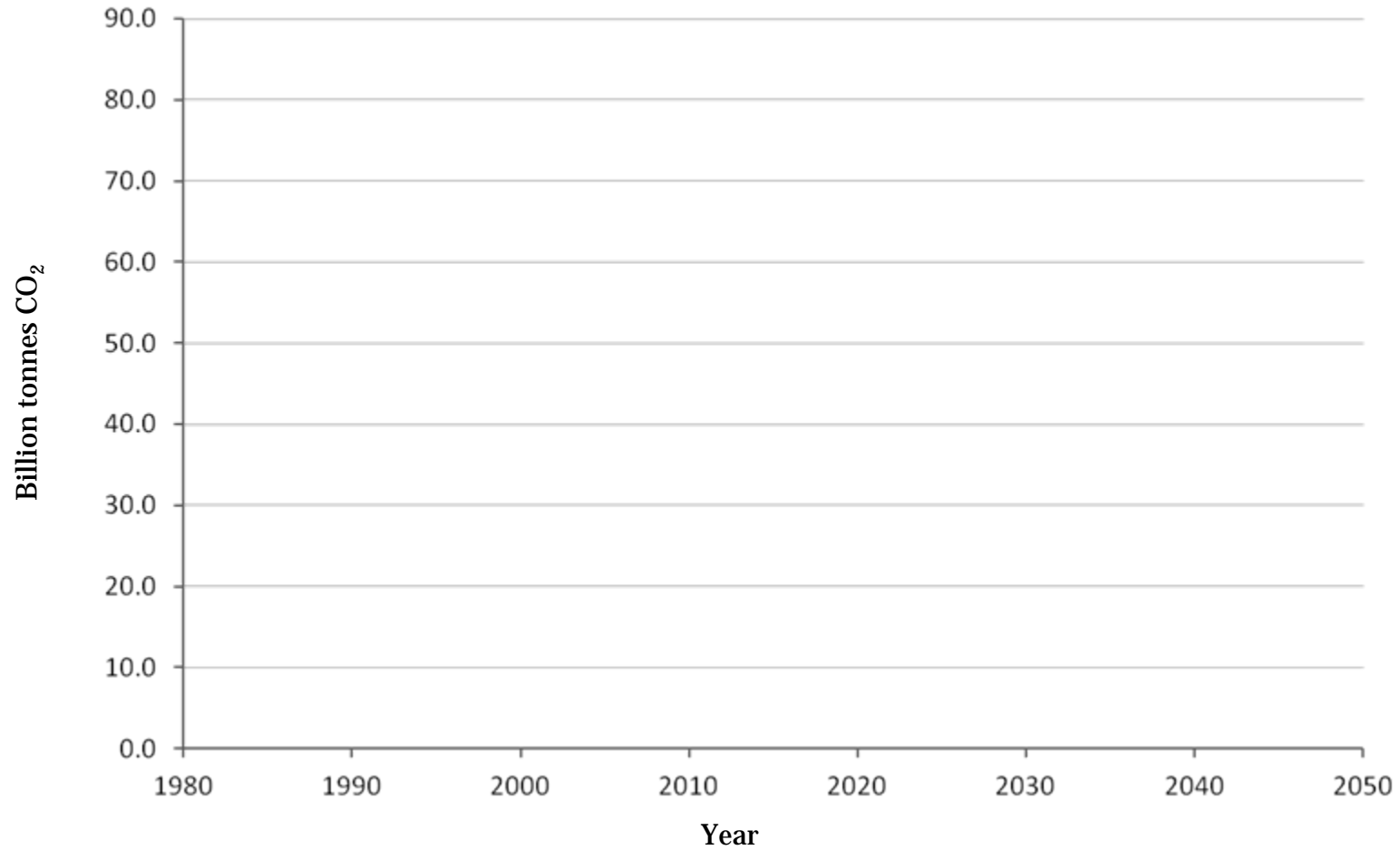
... and for **adaptation**, in case the global community fails to mitigate ...

What **temperatures**/climate should Manchester prepare for?

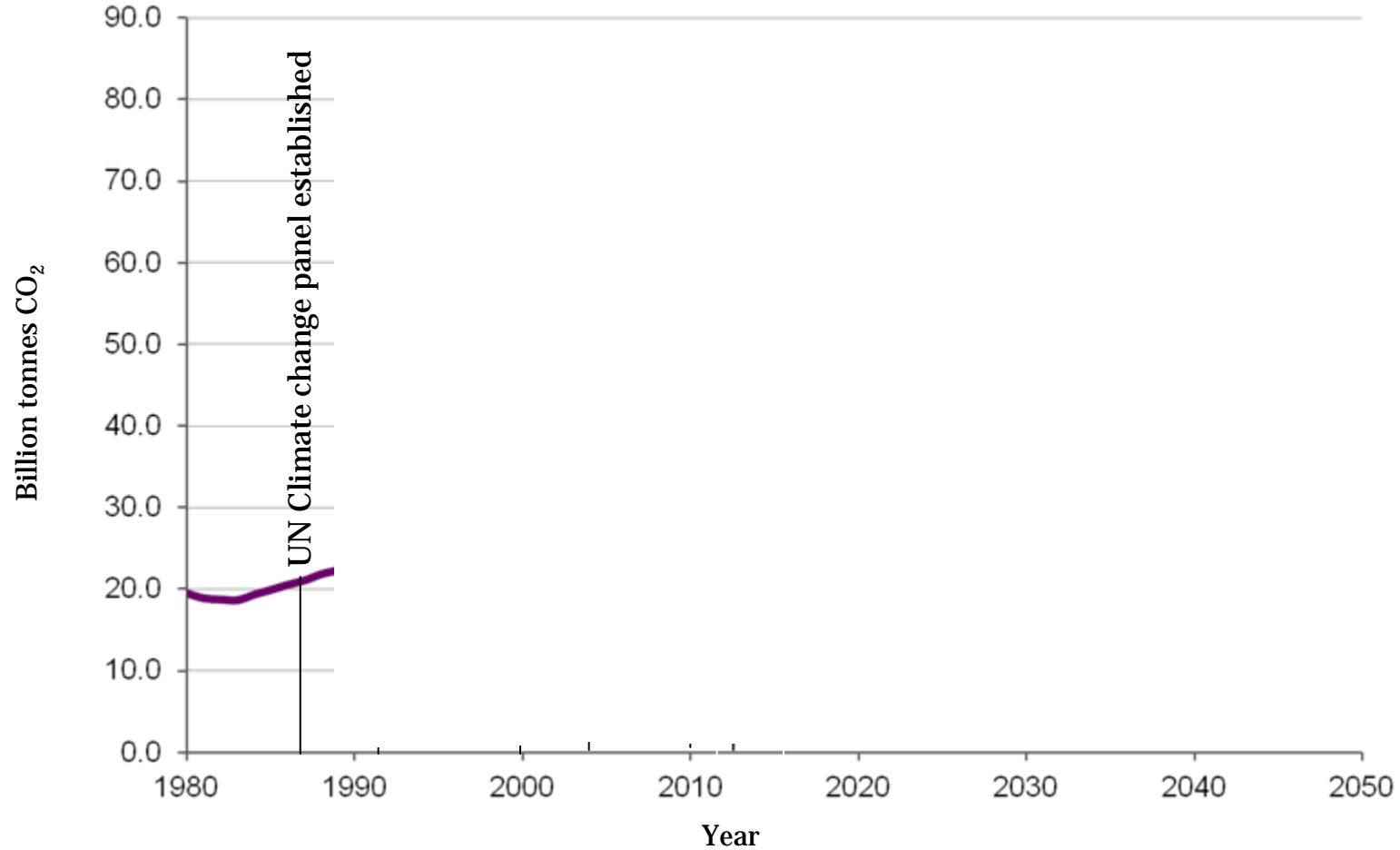
*How consistent are these 2°C & 4°C futures
with emission trends?*



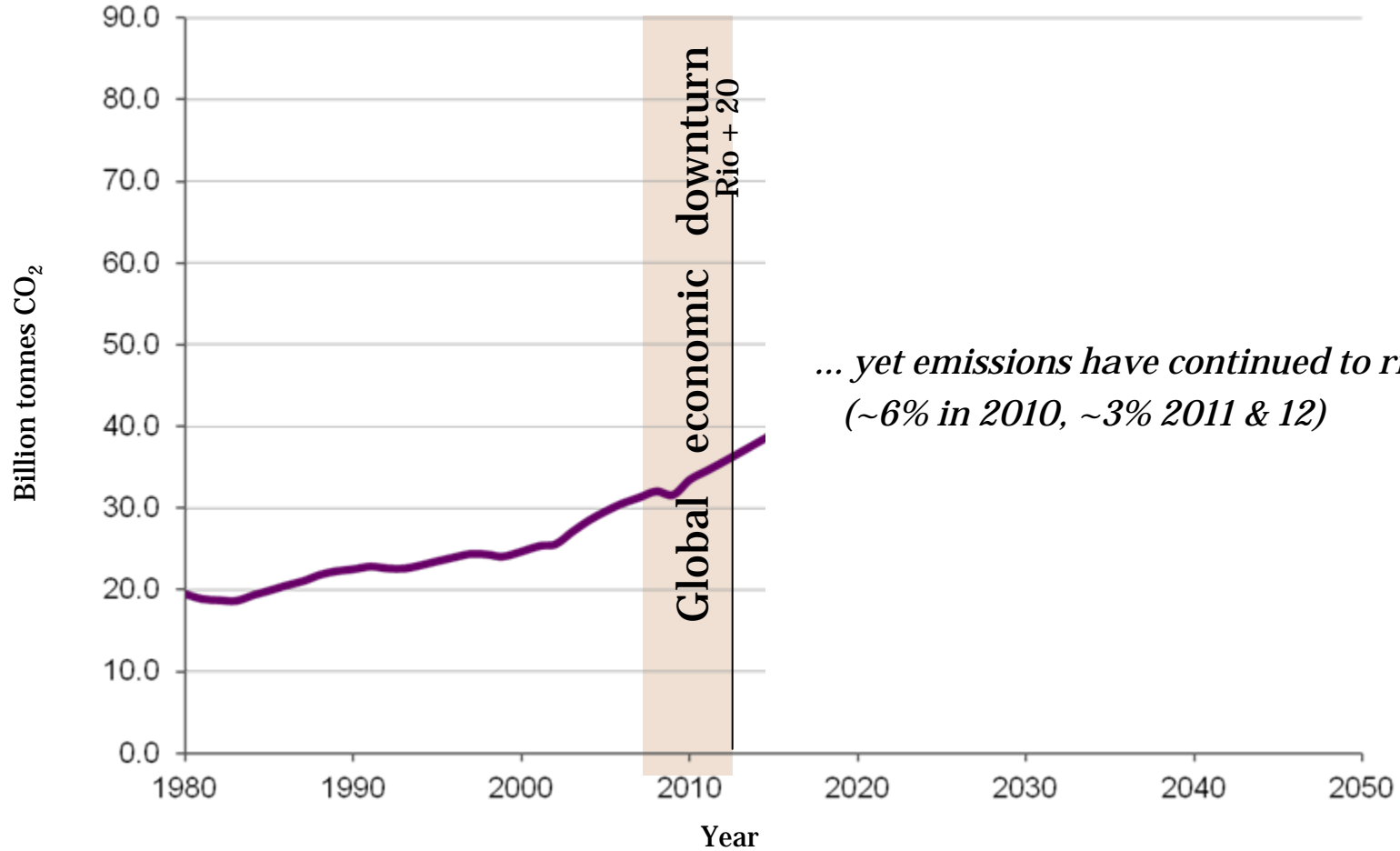
Global emission of fossil fuel CO₂ (inc. cement)



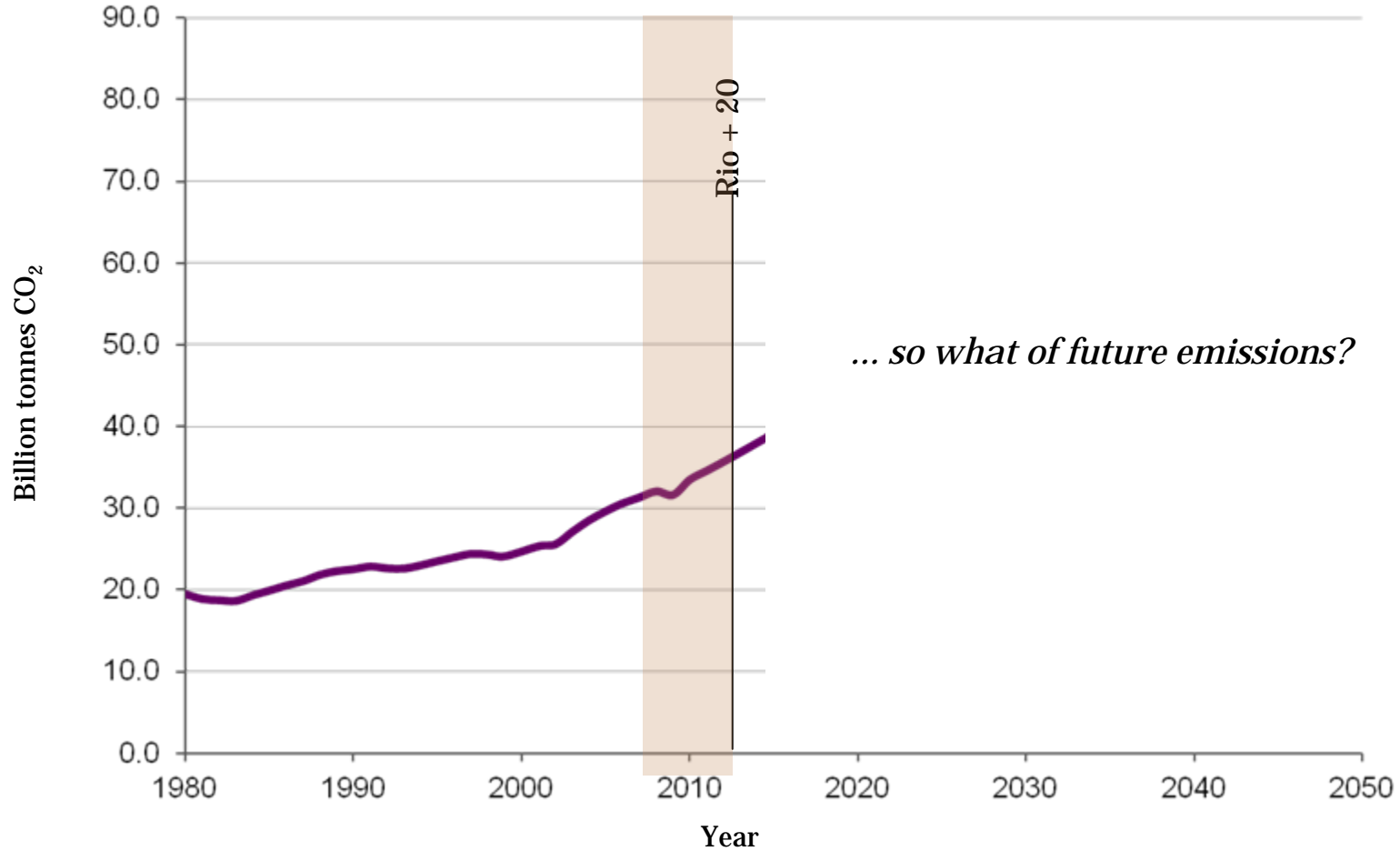
Global emission of fossil fuel CO₂ (inc. cement)



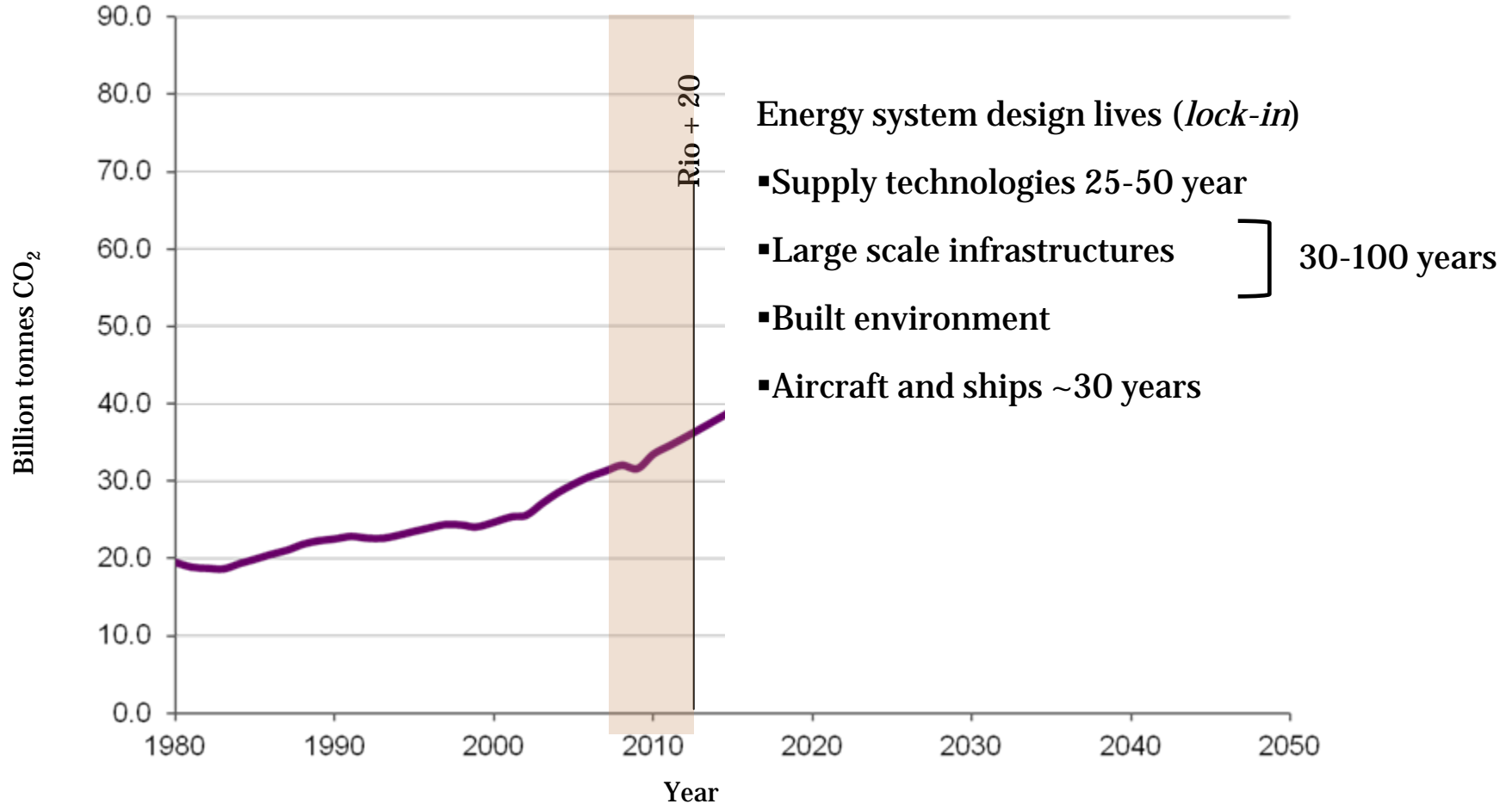
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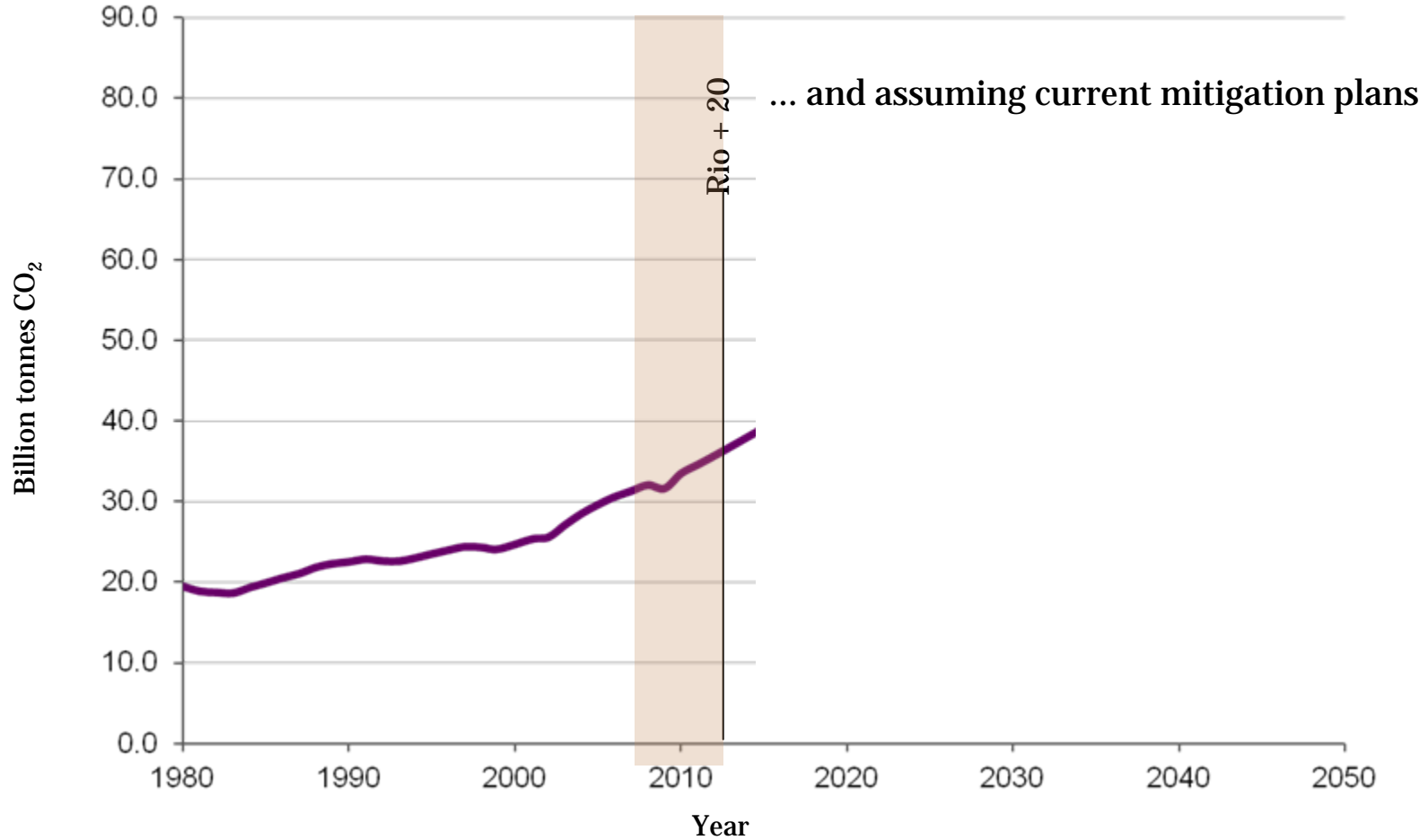
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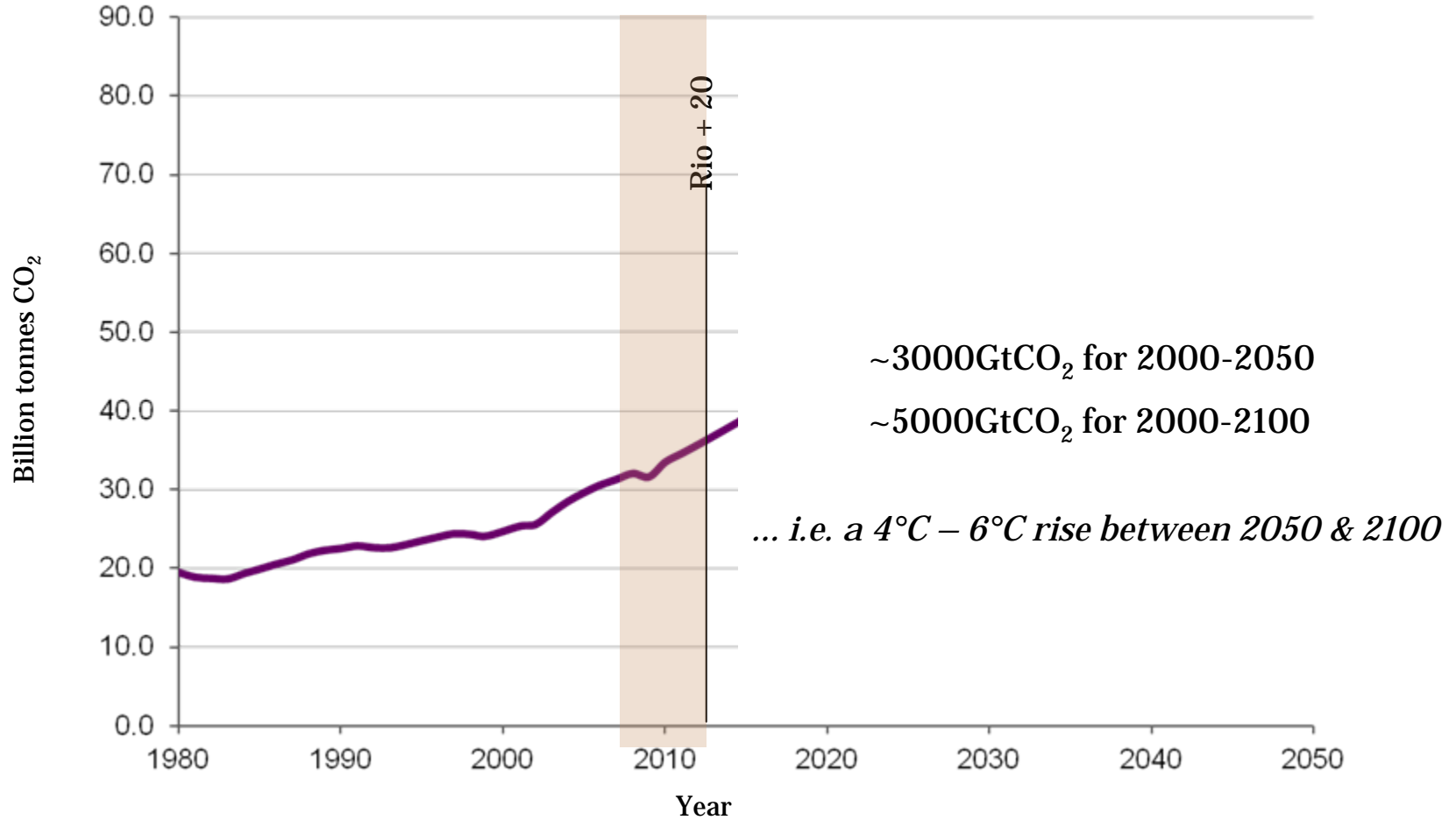
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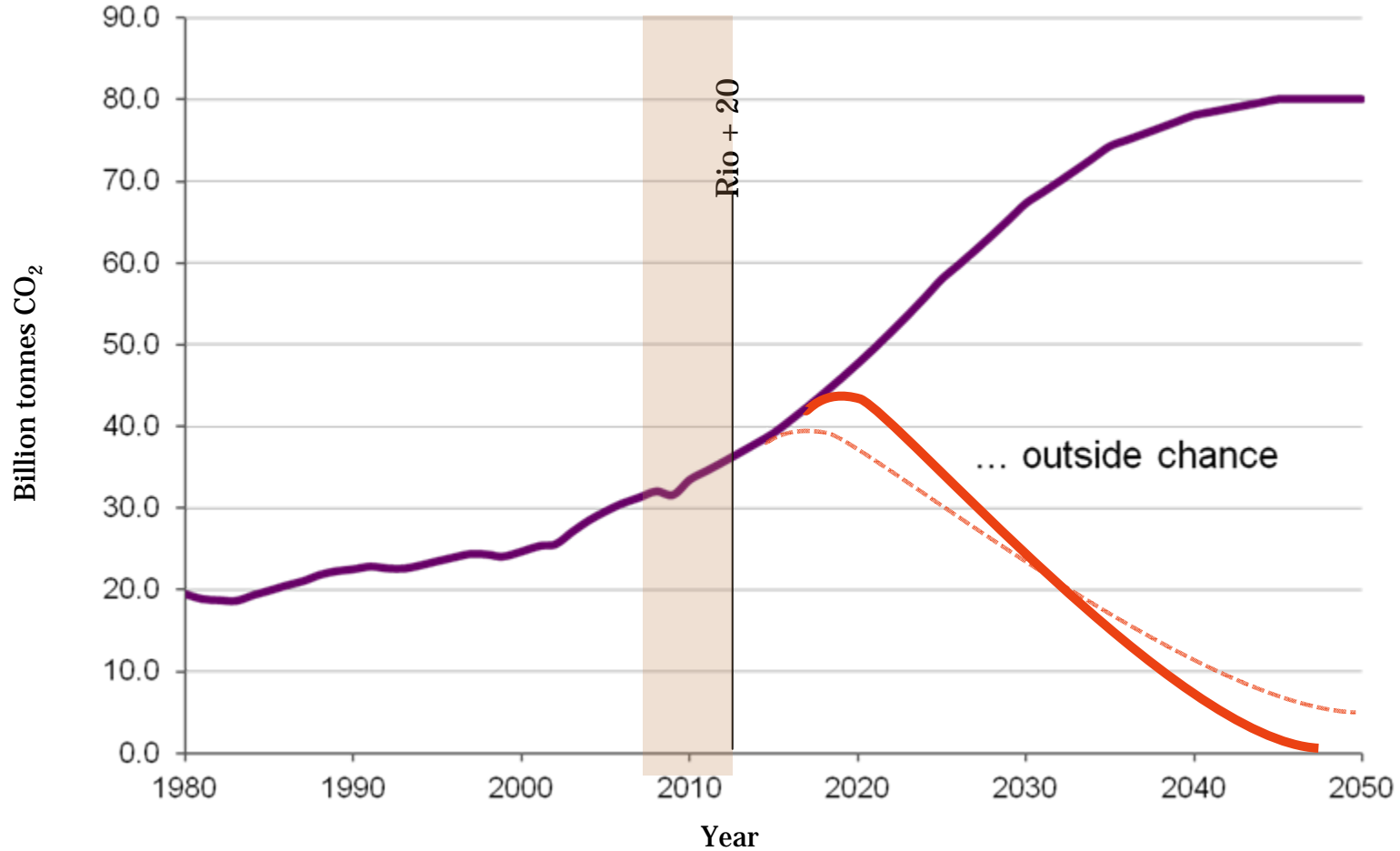
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Global emission of fossil fuel CO₂ (inc. cement)



*The 'orthodox' view on transitioning
to 2°C mitigation*



“To keep ... global average temperature rise close to 2°C ... the UK [must] cut emissions by at least 80% ... the good news is that reductions of that size are possible without sacrificing the benefits of economic growth and rising prosperity.”

CCC first report p.xiii & 7 (2009/11)

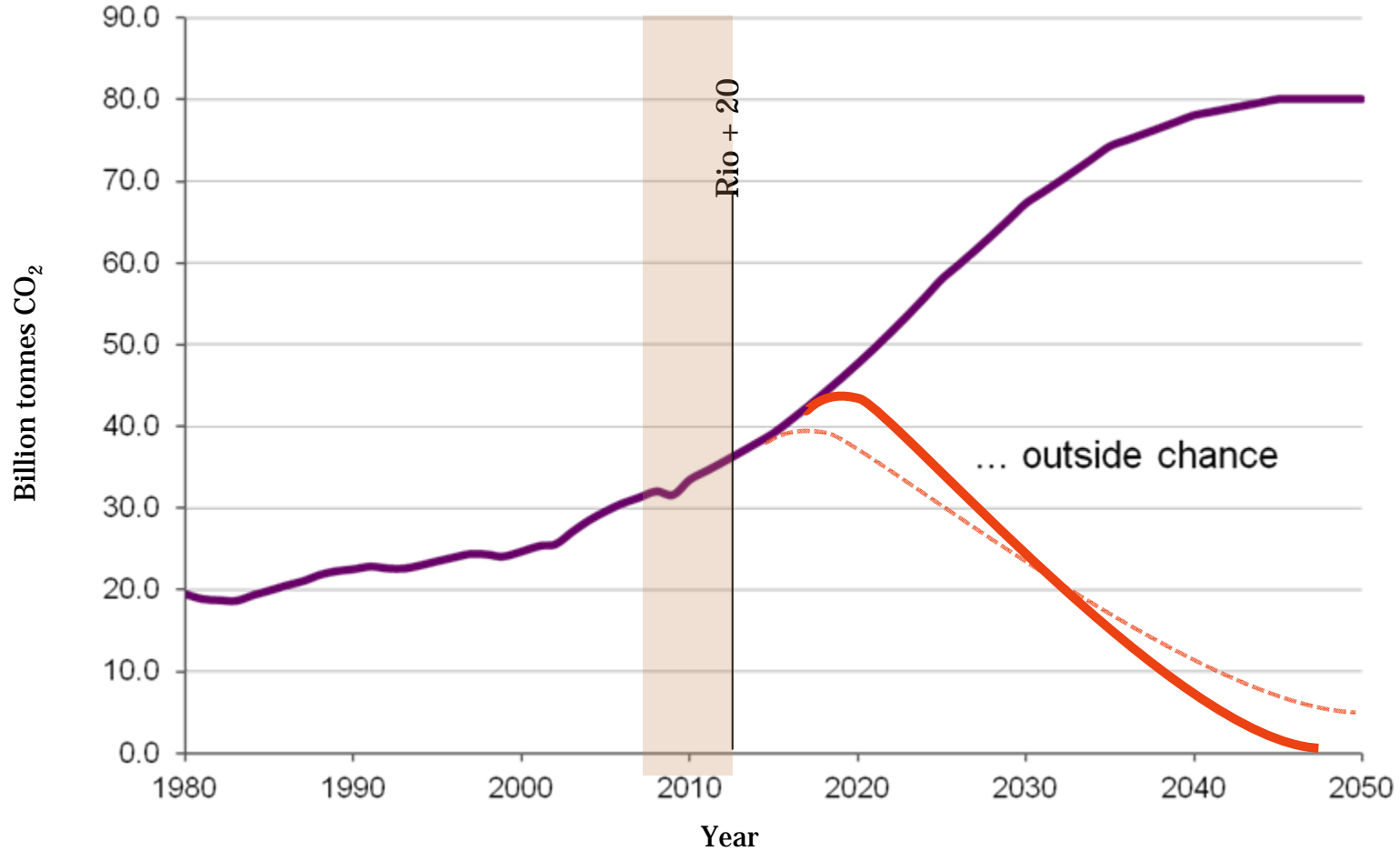
2°C – a alternative take ...



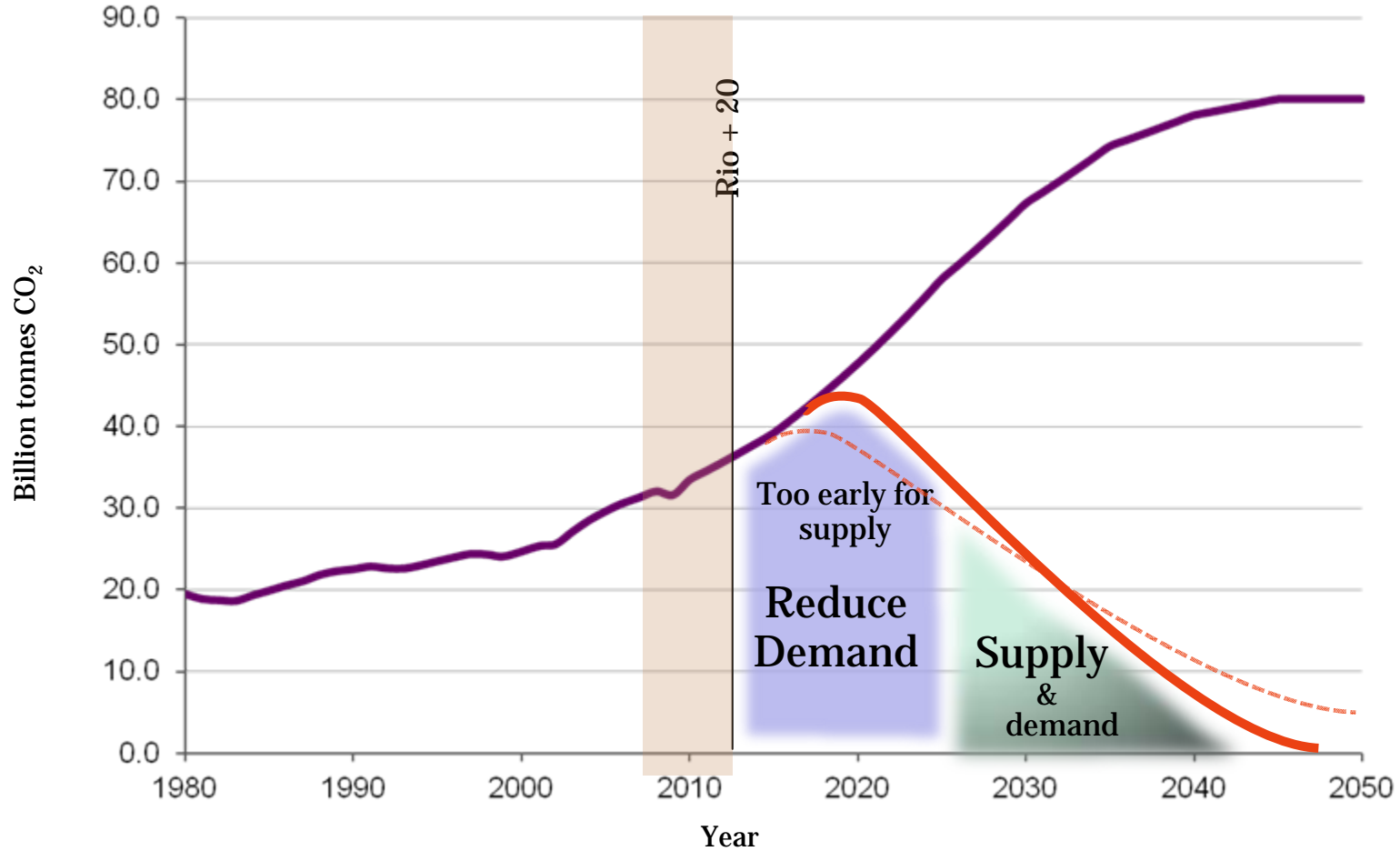
*“... it is difficult to envisage anything other than a **planned economic recession** being compatible with stabilisation at or below 650ppmv CO₂e [~4°C]”*

Anderson & Bows 2008/11

Global emission of fossil fuel CO₂ (inc. cement)



Global emission of fossil fuel CO₂ (inc. cement)



How can such radically different interpretations arise from the same science?



Inconsistencies in 2°C targets

- Copenhagen Accord: *“hold ... below 2°C Celsius”*
- UK Low Carbon Transition Plan: *“must rise no more than 2°C”*
- EU: *“do not exceed ... by more than 2°C”*

IPCC taxonomy: a *“very unlikely”* to *“exceptionally unlikely”* chance of exceeding 2°C
*... correlates with less than a **10%** chance of exceeding 2°C*

Despite this:

- the Government adopts a pathway with a **63%** of exceeding 2°C

Carbon budget for 63% chance of exceeding 2°C is:

- Over twice the size as for a ~10% chance of exceeding 2°C

That is:

The UK government's legally-binding carbon budget is twice the size of that accompanying the UK's explicit international commitments on 2°C!

... the implications of this are profound

Inconsistencies in **emission** targets

UK, EU & Global - long term reduction targets

UK's 80%	reduction in CO ₂ e by	2050
EU 60%-80%	“	2050
Bali 50%	“	2050

CO₂ stays in atmosphere for 100+ years

2050 reduction unrelated to avoiding dangerous climate change (2°C)

Cumulative emissions that matter (i.e. carbon budget)

This fundamentally rewrites the chronology of climate change

- **from long term gradual reductions**
- **to urgent & radical reductions**

So, where does this leave us?



If 2°C looks too difficult

... what about a 4°C future?

For **4°C** & emissions peaking by 2020 a
~ **3.5%** p.a. reduction in CO₂ from energy is necessary

... & such a reduction rate is achievable

so is aiming for 4°C more realistic?

For **4°C** global mean surface temperature

5°C - 6°C global **land** mean

... & increase °C on the hottest days of:

6°C - 8°C in China

8°C - 10°C in Central Europe

10°C - 12°C in New York

In low latitudes **4°C** gives

up to **40% reduction** in maize & rice

as population heads towards **9 billion** by 2050

There is a widespread view that 4°C is:

- incompatible with an organised global community
- beyond ‘adaptation’
- devastating to eco-systems
- highly unlikely to be stable (‘tipping points’)

... consequently ...

4°C should be avoided at ‘all’ costs

Returning to 2°C



2°C mitigation requires *(for Annex 1/OECD nations)*

10% reduction in emissions year on year

~40% reduction by ~2015 (c.f. 1990)

~70% ~2020

~90+% ~2030

Impossible?

... is living with a 4°C global temperature rise by 2050-70 less impossible?

Before despairing ...

Have we got the **agency** to achieve the unprecedented reductions rates linked to an outside chance of 2°C ?

Stern, CCC & others:

**Mitigation of over 4% p.a. incompatible
with economic growth**

*... but at the same time the economy has stalled, self regulated markets have
been found wanting and even £350 of QE has failed to pay dividends*

We have an unprecedented opportunity to think differently

Growth is a proxy for many social goods, inc.:

- Welfare (health, life expectancy)
- Employment/income
- Equity
- Literacy rates
- Etc ..

Growth itself doesn't really matter

A major programme of greening Manchester's built environment and infrastructure could help improve all of these.

Retrofit Manchester's housing stock:

- Reduce energy use & emissions
- Increase resilience to a changing climate
- Provide many 1000s of skilled & semi-skilled jobs
- Reduce fuel poverty (1/4 million homes)

Rapid transition to a low-carbon transport *system*

- Reduce air pollution & bronchial conditions
- Reduce accidents
- Reduce congestion/improve productivity
- Encourage inward investment

... thorny issue of the airport.

As all investment has an opportunity cost ... is expanding airport capacity a good and sustainable use of Manchester's limited resources?

Would the city & region benefit more from increased aviation (tourist money flying out & potentially increased inward investment)

– or

Transforming Manchester into a congestion-free city, with trams, hybrid buses & dedicated cycle routes transporting commuters from their low-carbon climate-resilient houses to low-carbon businesses? Which would be more attractive for Manchester residents and investors?

Programme of deep efficiency improvements in council buildings/operations

- Reduce energy and emissions
- Increased resilience to volatile energy prices
- Engender wider spread of best-practice

Ultimately

We must escape the shackles of a twentieth century mind-set if we're ever to resolve twenty-first century challenges.

This demands leadership, engaged teams and difficult choices;

... to this end Manchester is already ahead of the game:

It has:

- the MACF (& the refresh) document
- A climate change strategy
- & a GM Poverty Commission report

But the city and region also has a thriving 'civil' society - from writing detailed reports on steady-state economics through to mobilising bottom-up engagement.

It has cutting edge higher education and a history of innovative firsts ...

Climate change could be Manchester's new cotton!

Finally:

“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.”

Roberto Unger

Thank you

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