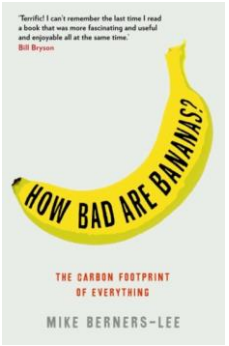
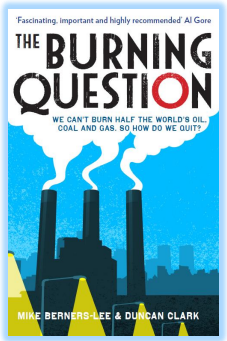
Institute for
Social Futures

What can any of *us* do about climate change?

Mike Berners-Lee

Mike@sw-consulting.co.uk





SMALL WORLD CONSULTING

LANCASTER UNIVERSITY

An Associate Company of
Lancaster University

Shrinking the balloon

Mike Berners-Lee

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Tonight's journey

Understand what's going on

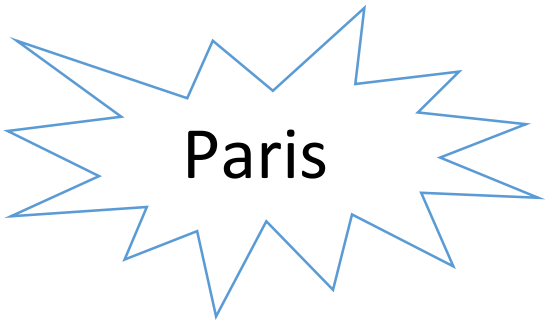
Understand where we are heading

Understand how the system is working

Understand the future that we want

Understand what it will take to change the trajectory

Work out where we can help



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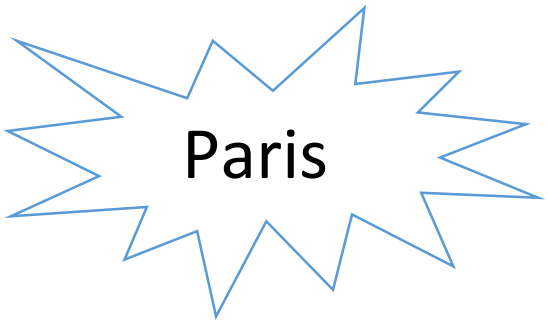
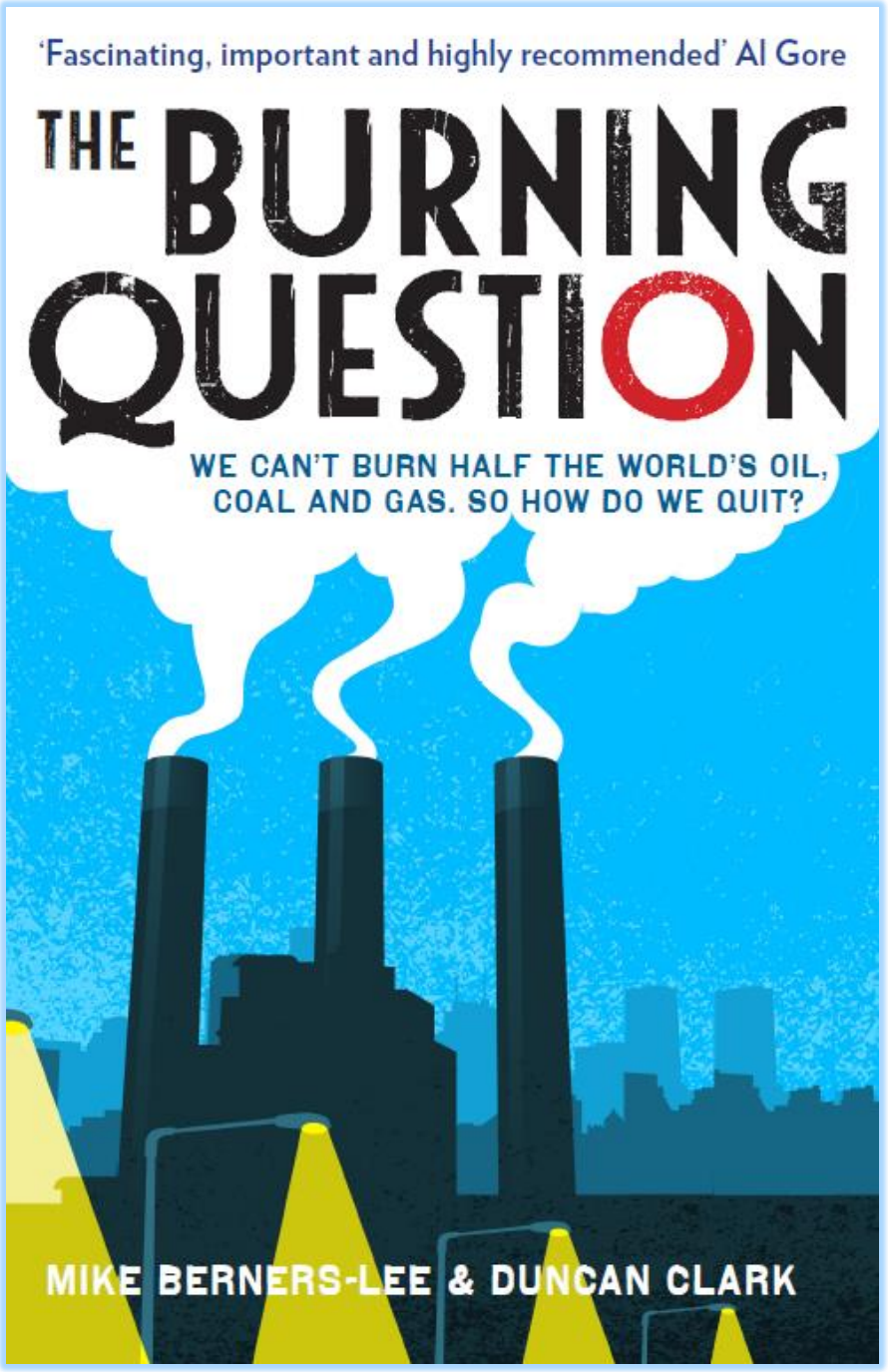
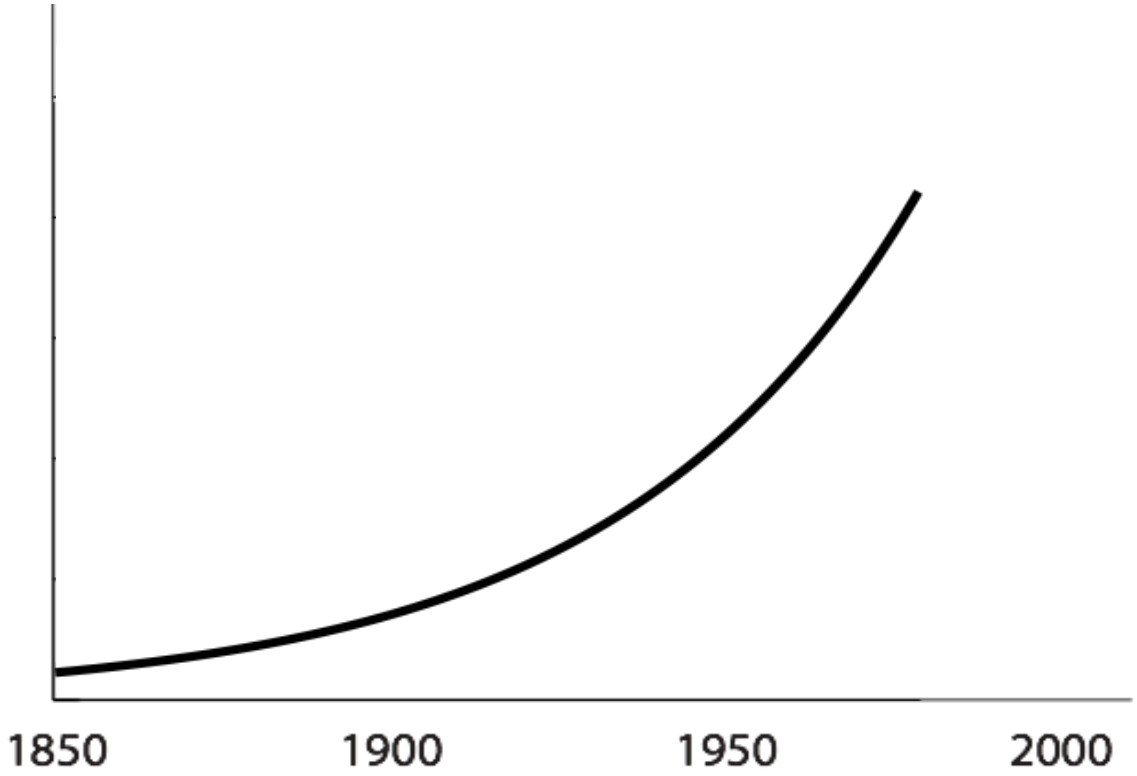
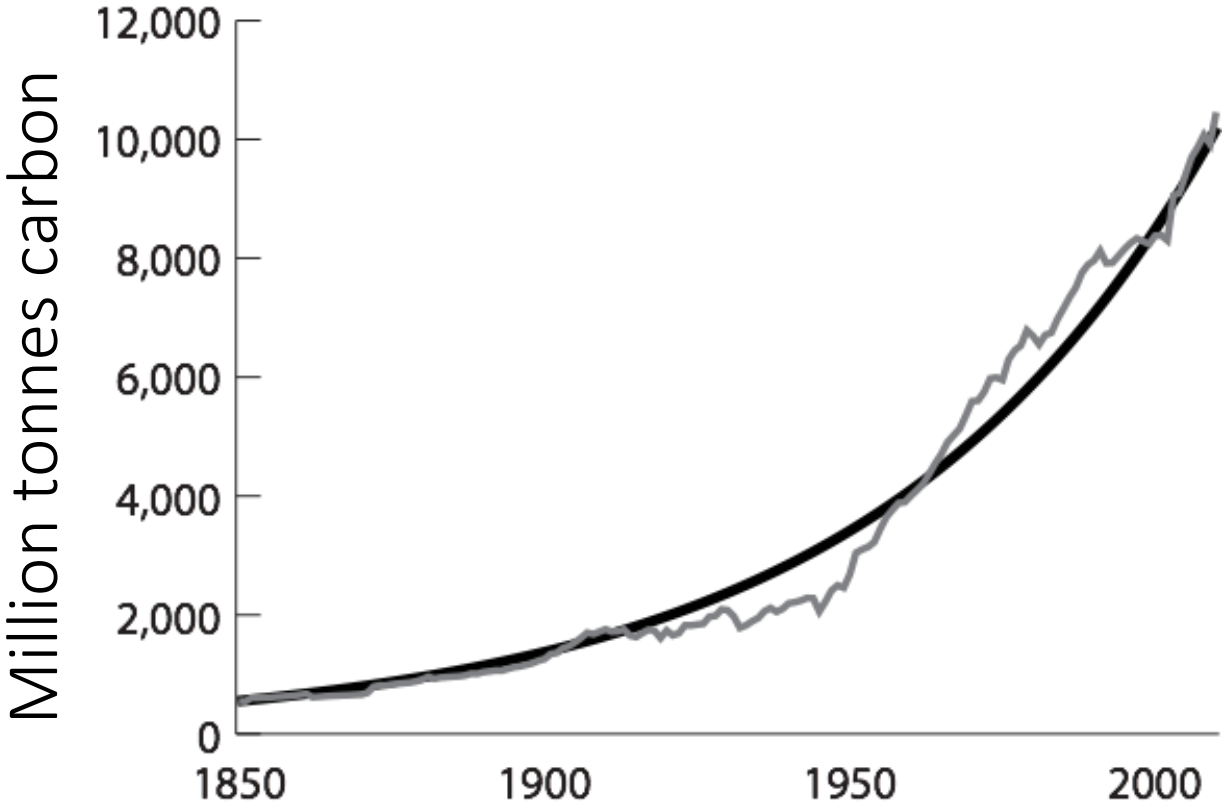



'Fascinating, important and highly recommended' Al Gore
THE BURNING QUESTION
WE CAN'T BURN HALF THE WORLD'S OIL, COAL AND GAS. SO HOW DO WE QUIT?
MIKE BERNERS-LEE & DUNCAN CLARK

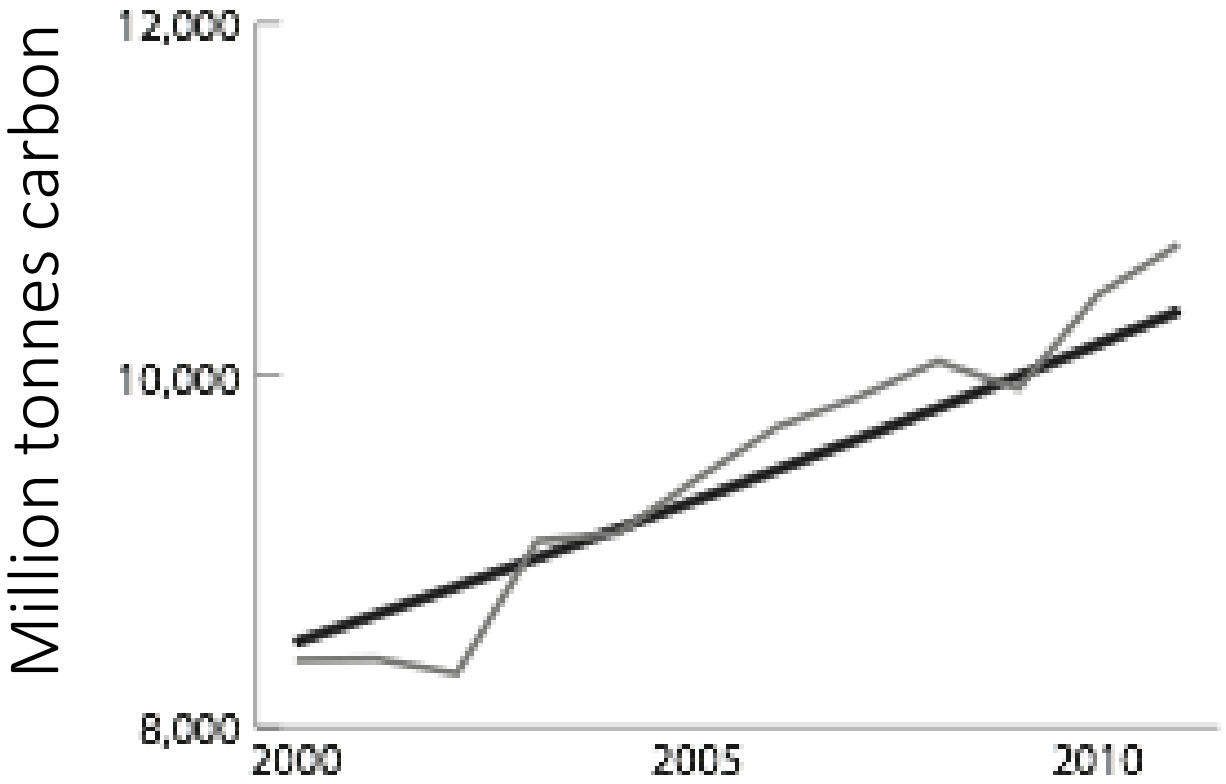
An exponential curve



Annual carbon emissions (fossil energy + land use change)

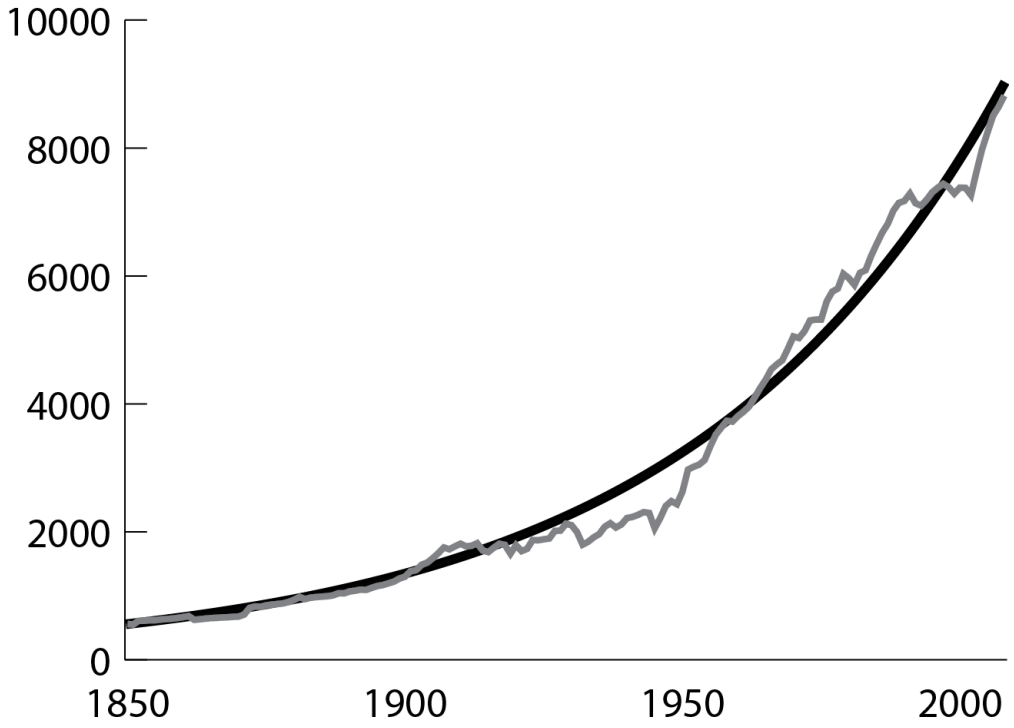


No encouraging signs from the last few years



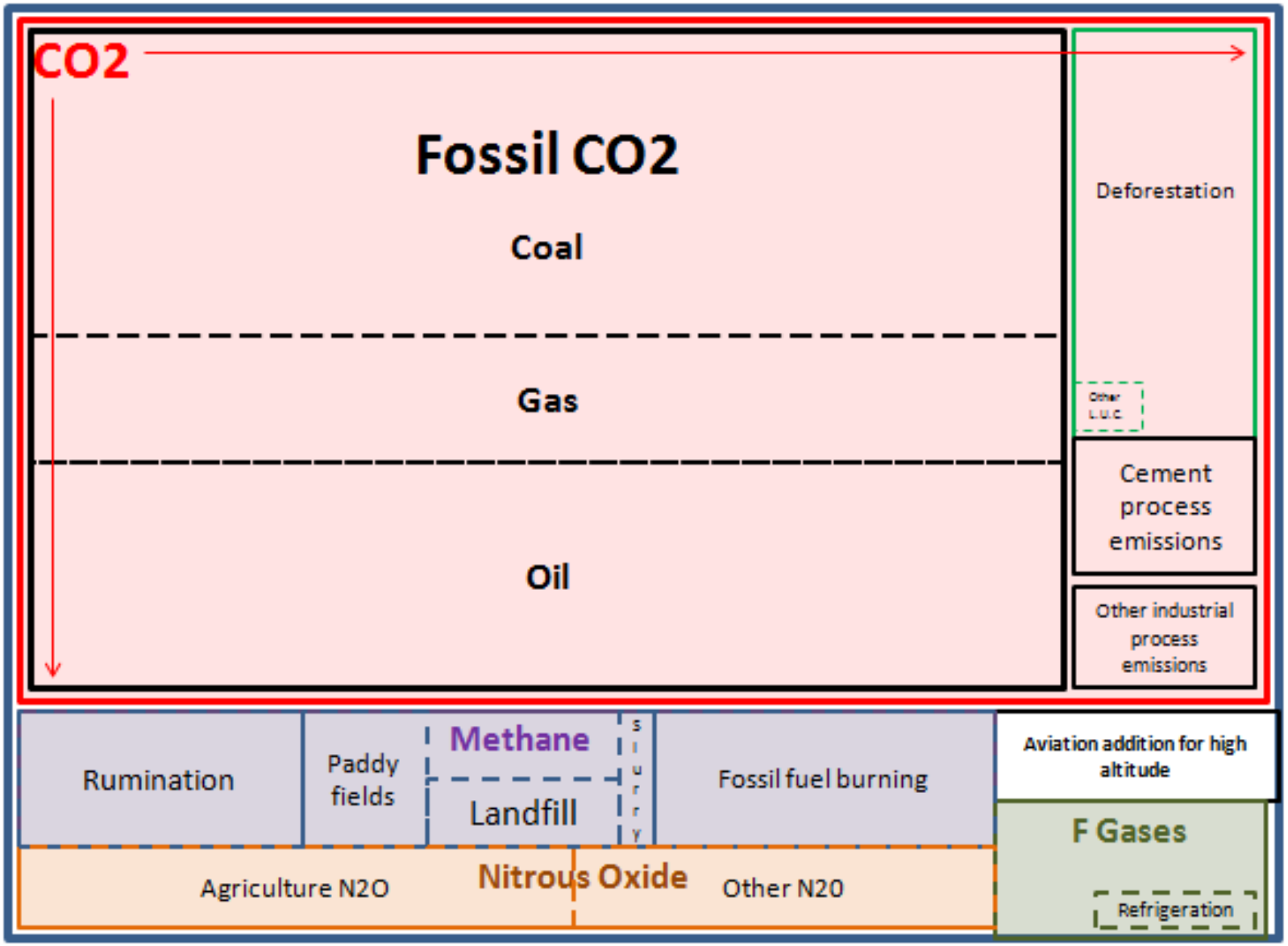
The curve

- Both annual and cumulative emissions double every 39 years
- No detectable change from BAU
- Efficiency and green energy haven't yet helped
- There is a feedback loop at the global system level.

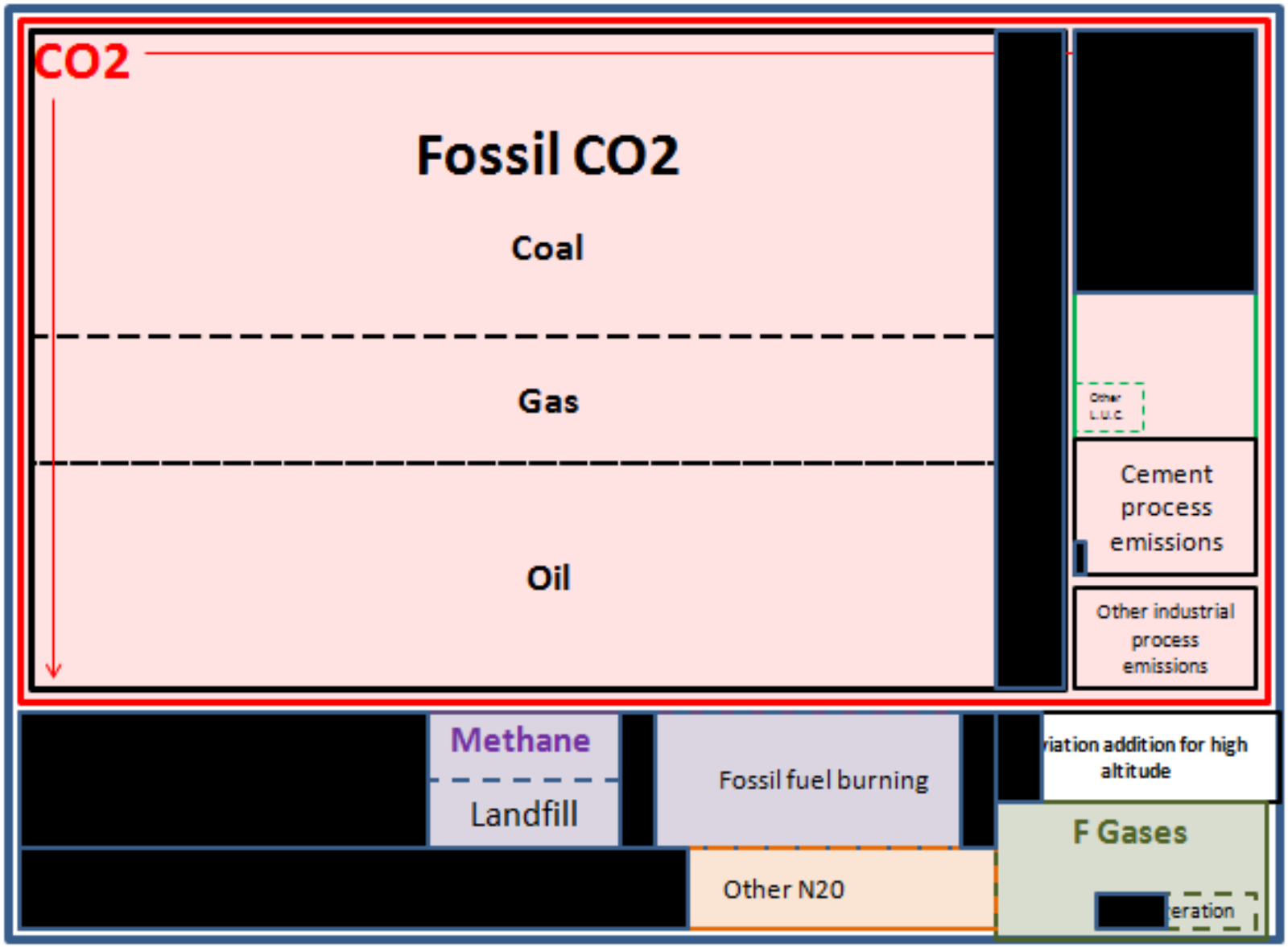


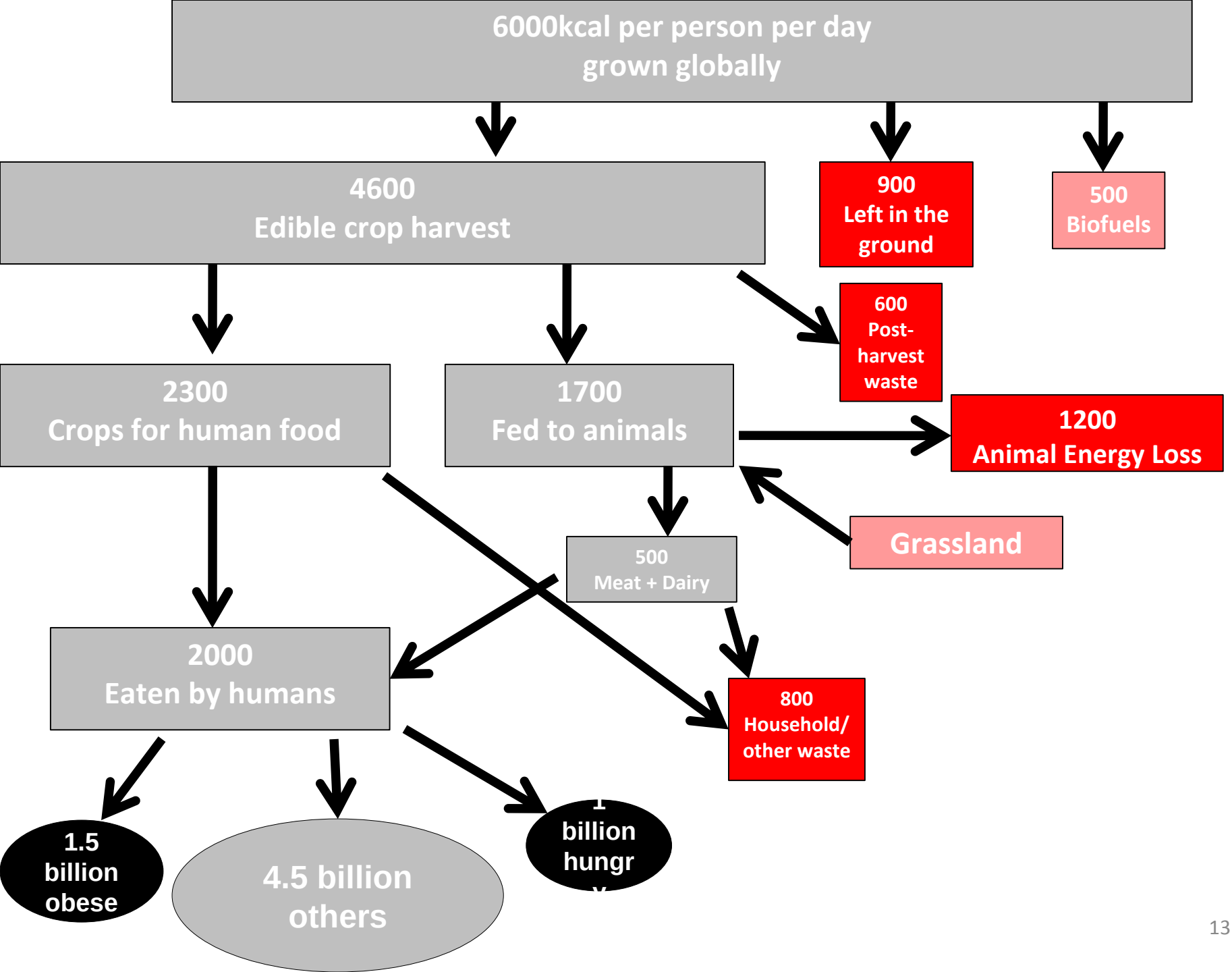
Other Greenhouse Gases, Food, Land, Biodiversity, and Biofuel

All Greenhouse Gases: 50 billion tonnes CO2e



The role of food – based on a 100 year outlook

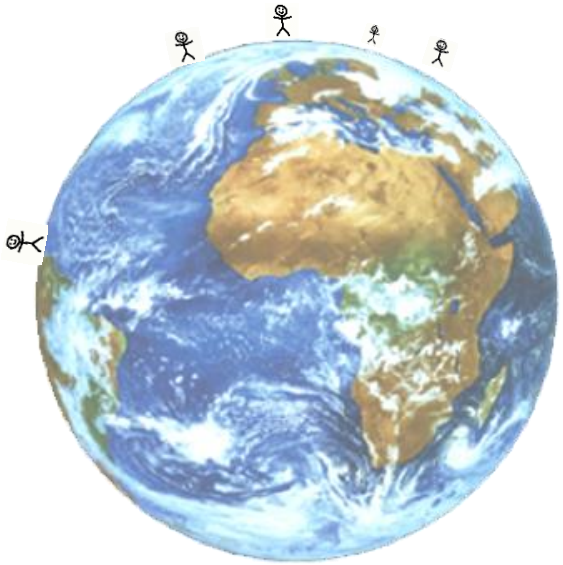


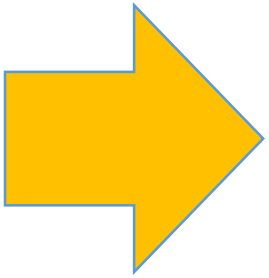

6000kcal per person per day
grown globally
4600
Edible crop harvest
900
Left in the ground
500
Biofuels
600
Post-harvest waste
2300
Crops for human food
1700
Fed to animals
1200
Animal Energy Loss
Grassland
500
Meat + Dairy
2000
Eaten by humans
800
Household/ other waste
1.5 billion obese
4.5 billion others
billion hungr

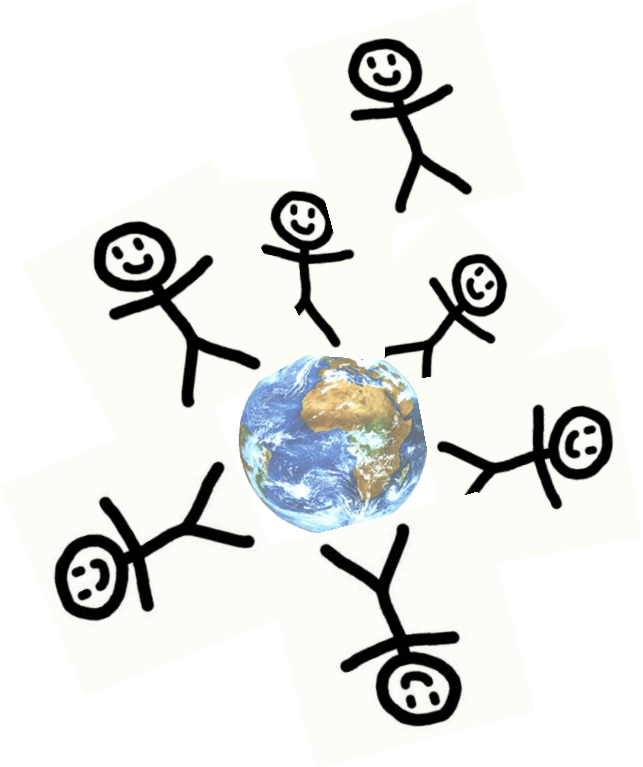
An Even Bigger Picture

Here we are in the Anthropocene

- for better and worse
- like it or not
- ready or not







Climate change won't be the last Anthropocene issue we have to deal with.

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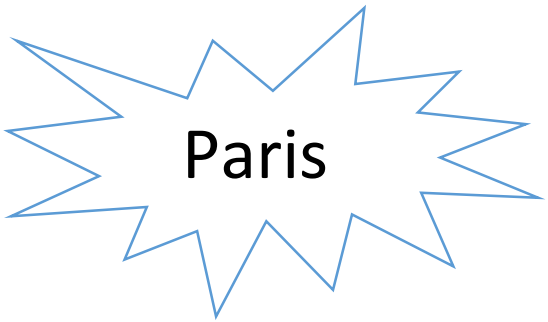


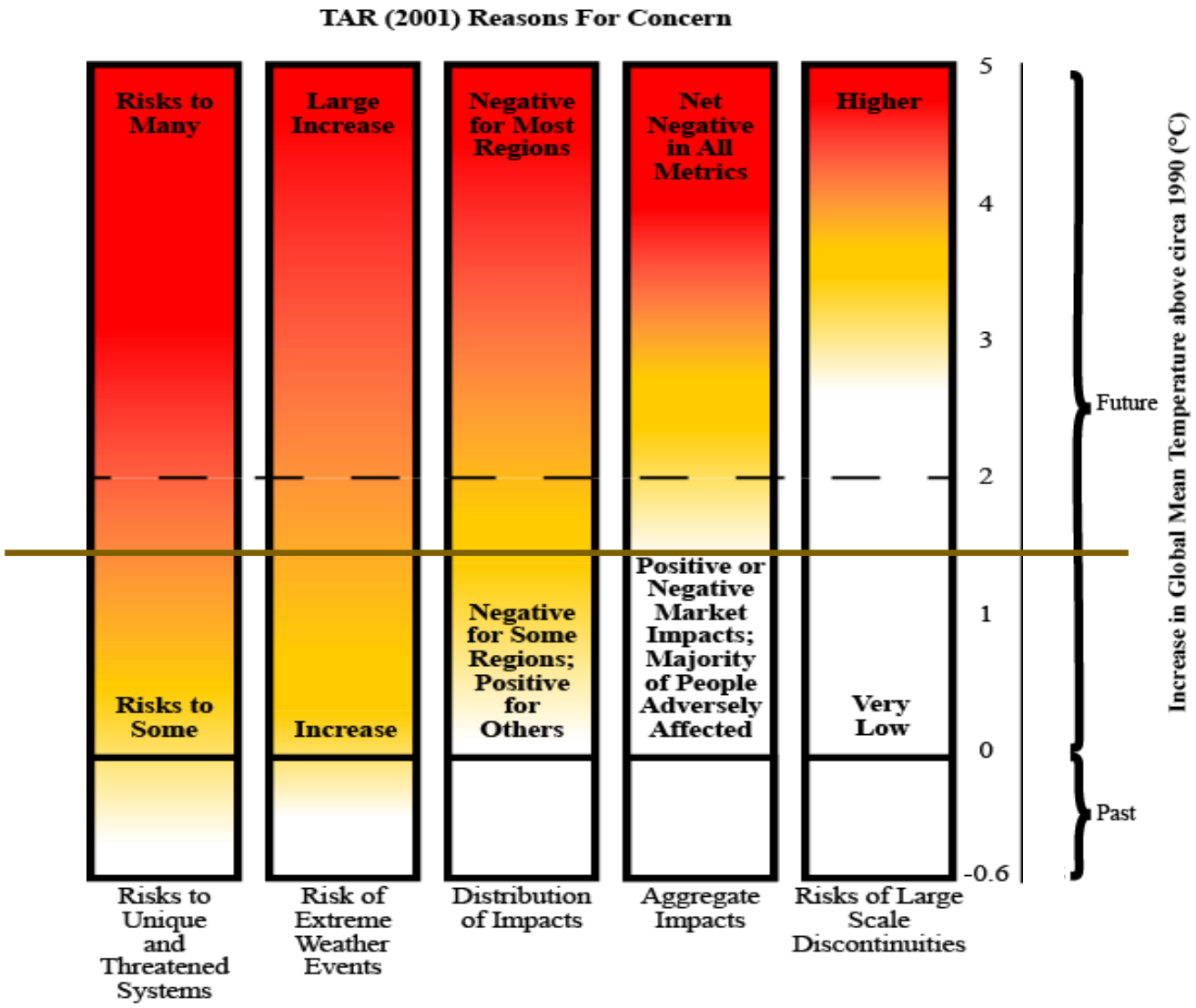
All exponentials come to an end

Will this one burn out on its own without causing us a problem?

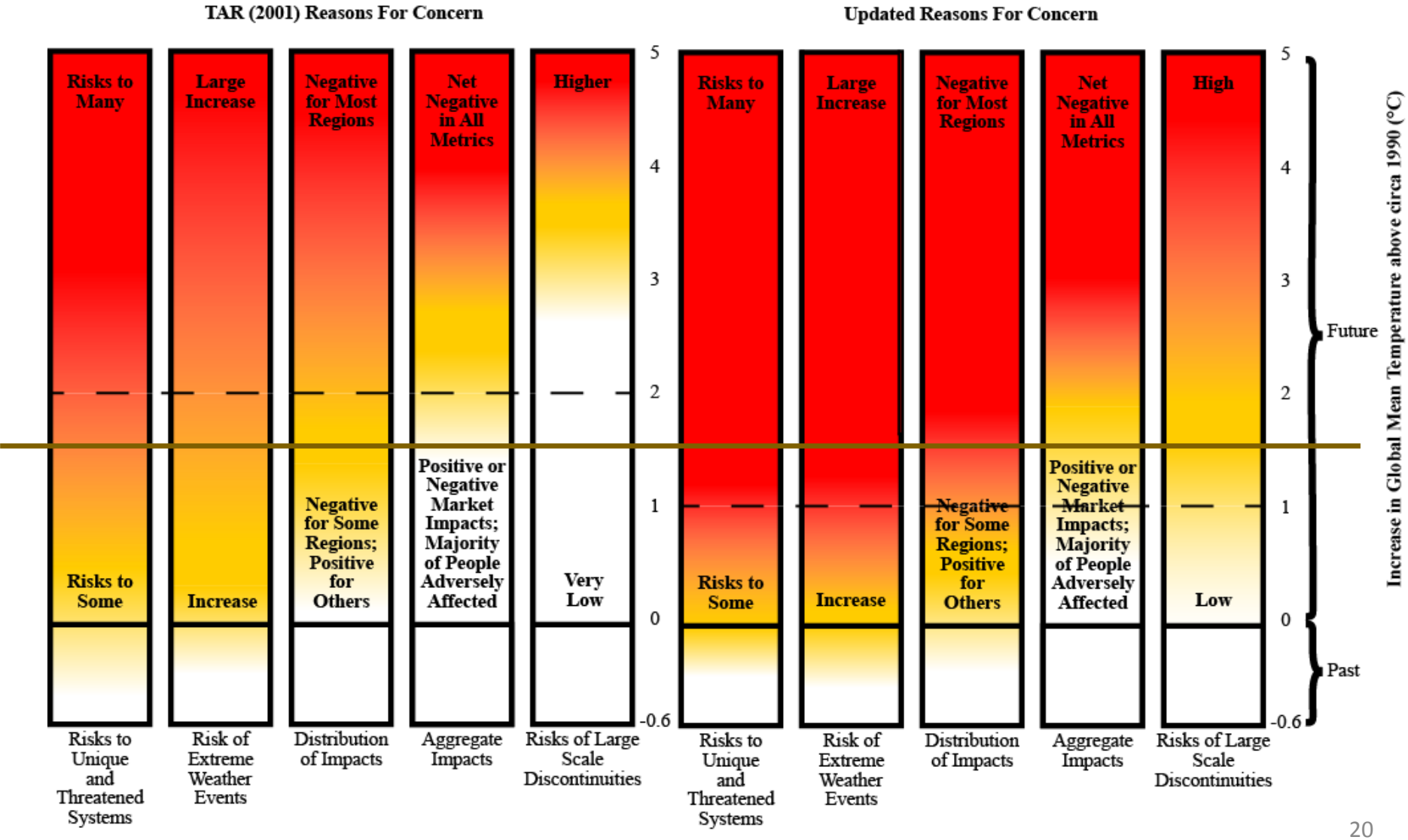
What temperature will be OK?
How about 2 degrees C?

The original logic behind 2 degrees

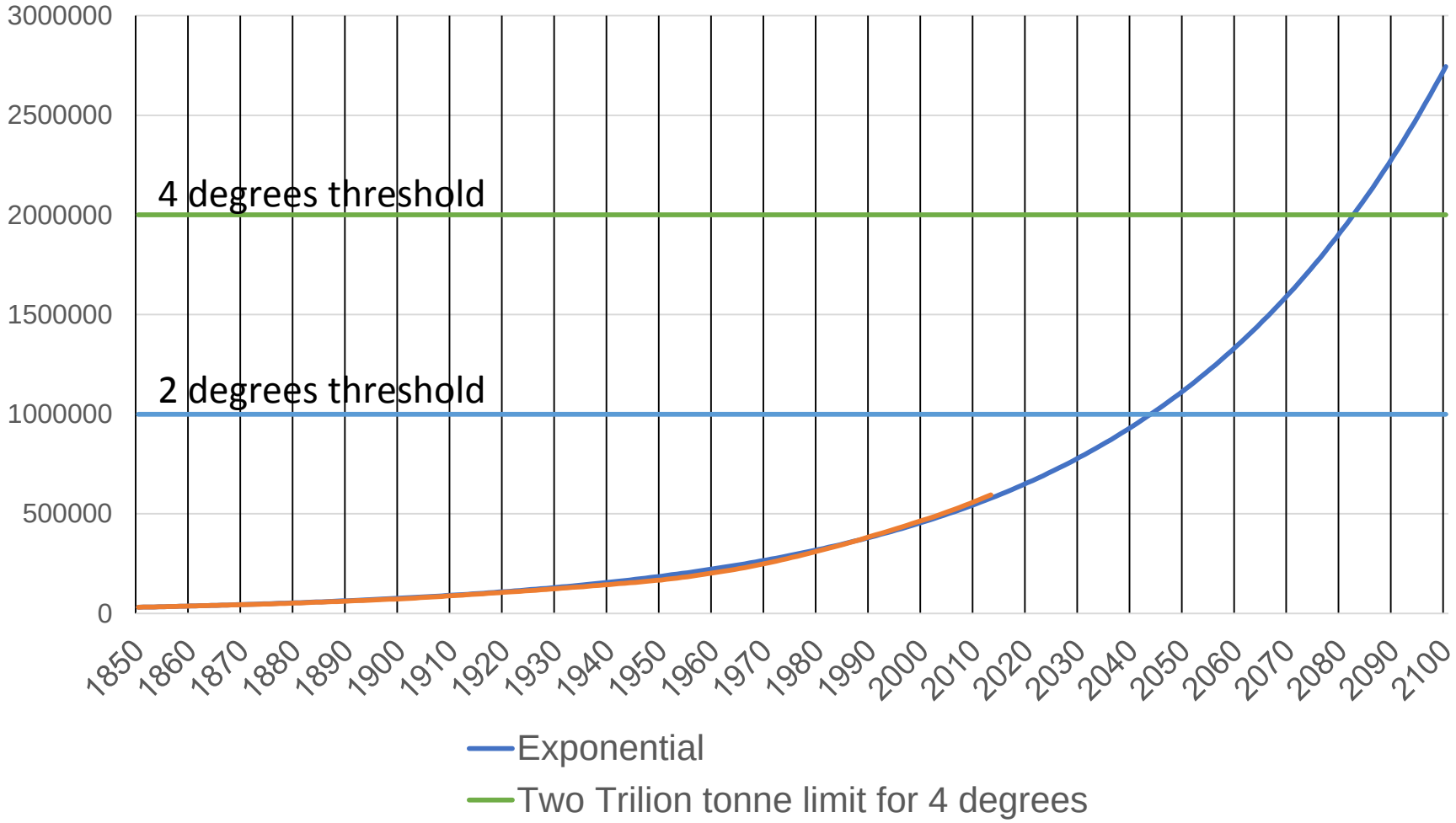
2 degrees above pre-industrial levels



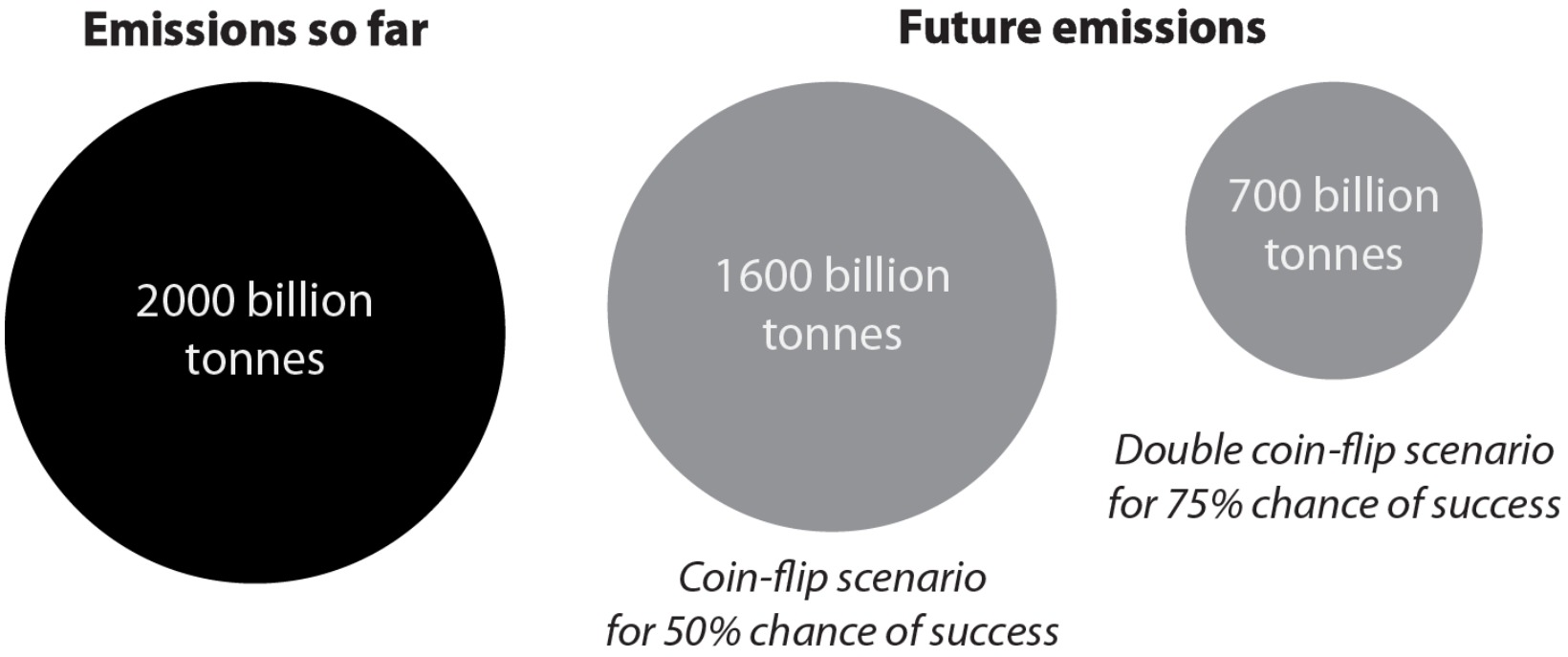
Two degrees is riskier than we thought



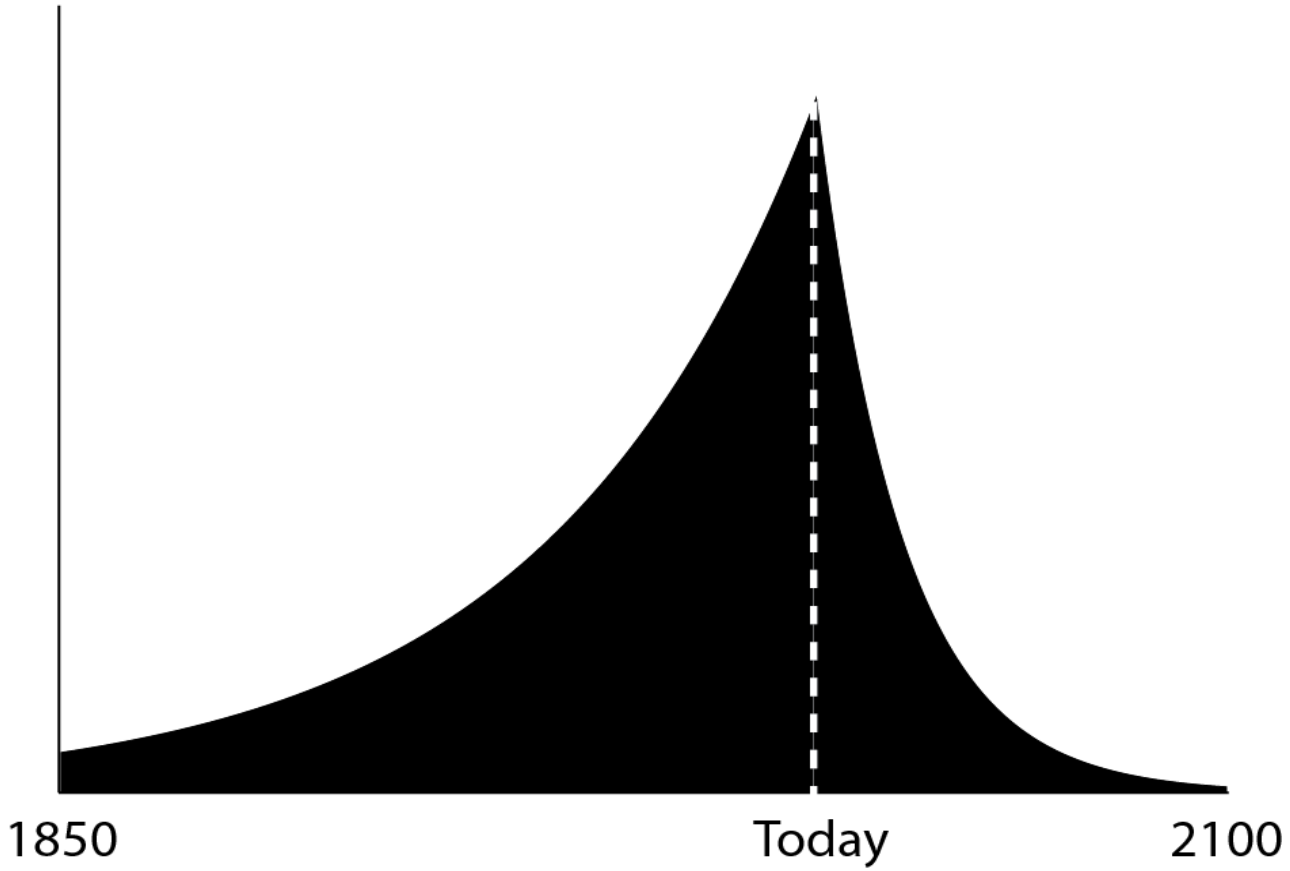
Cumulative Emissions from Fossil Fuel and Land Use Change (mt carbon)



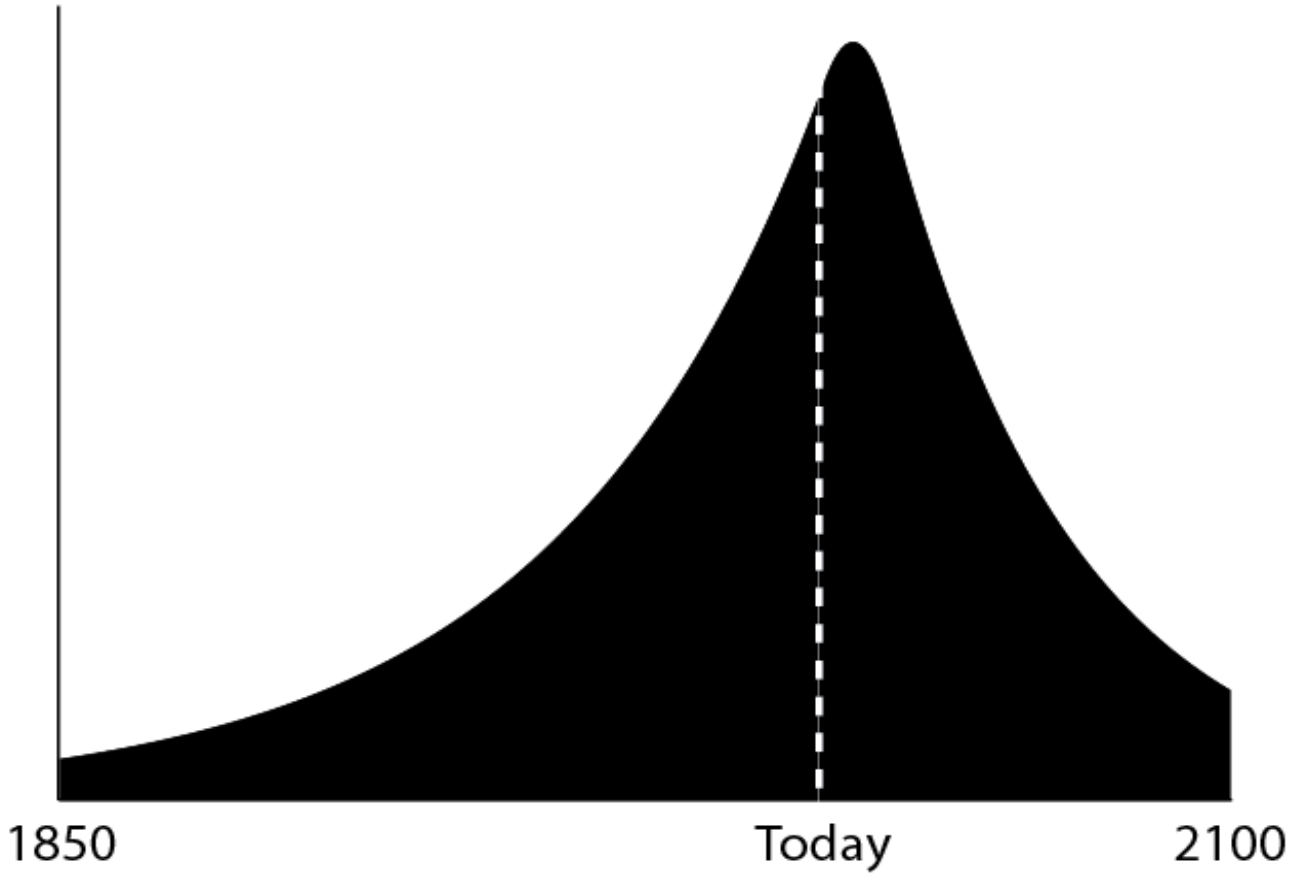
The total CO_2 budget for 2 degrees - mainly spent already



75% chance of <2°C – peaking today

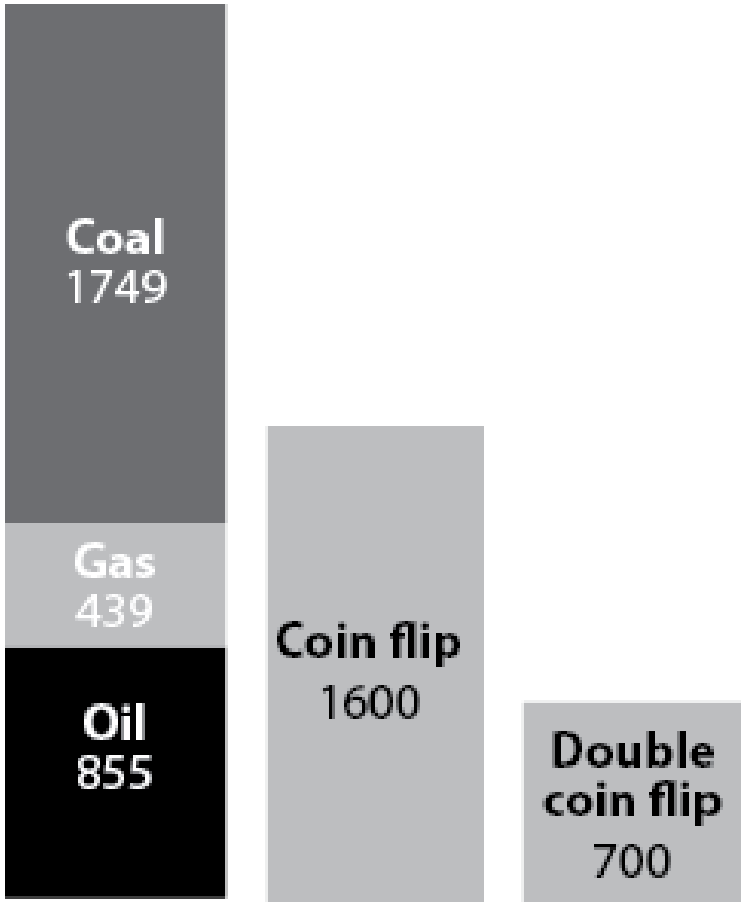


50% chance of <2°C – peaking in 2020

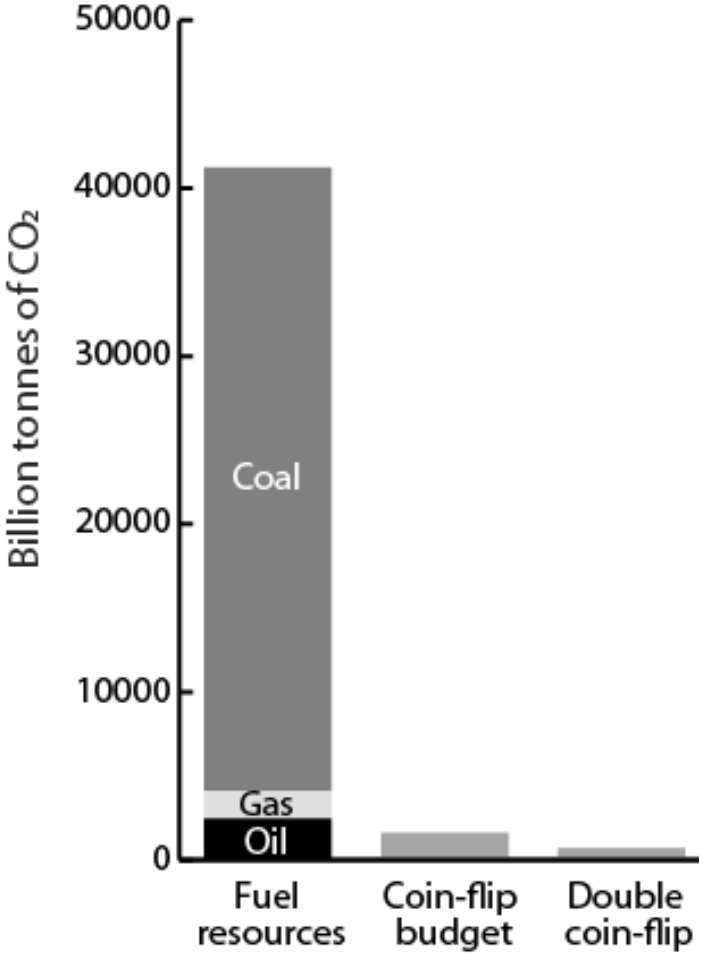


Will we run out of fuel in time?

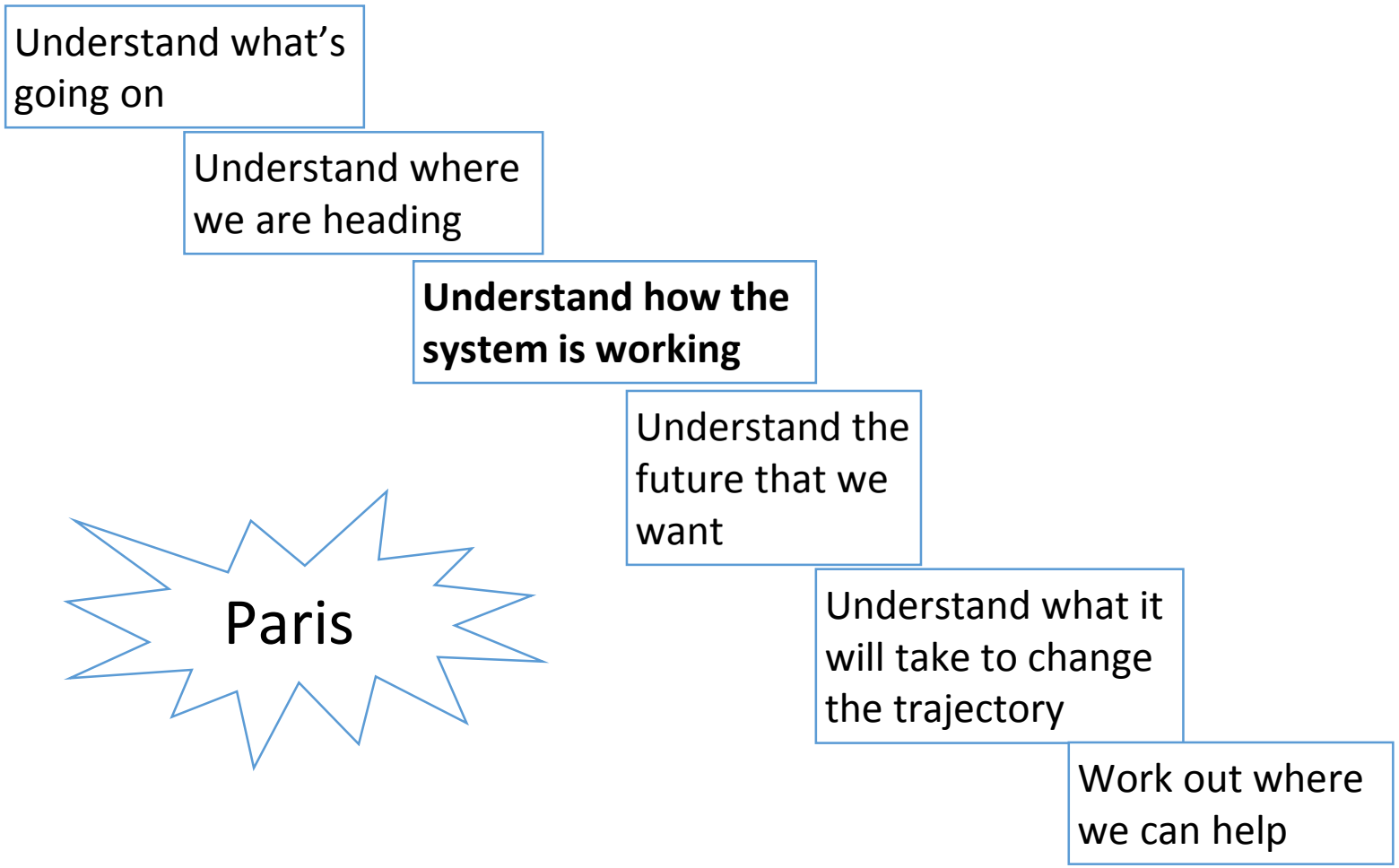
What share of the *proven* reserves can we burn?



What share of the *recoverable* resources can we burn?



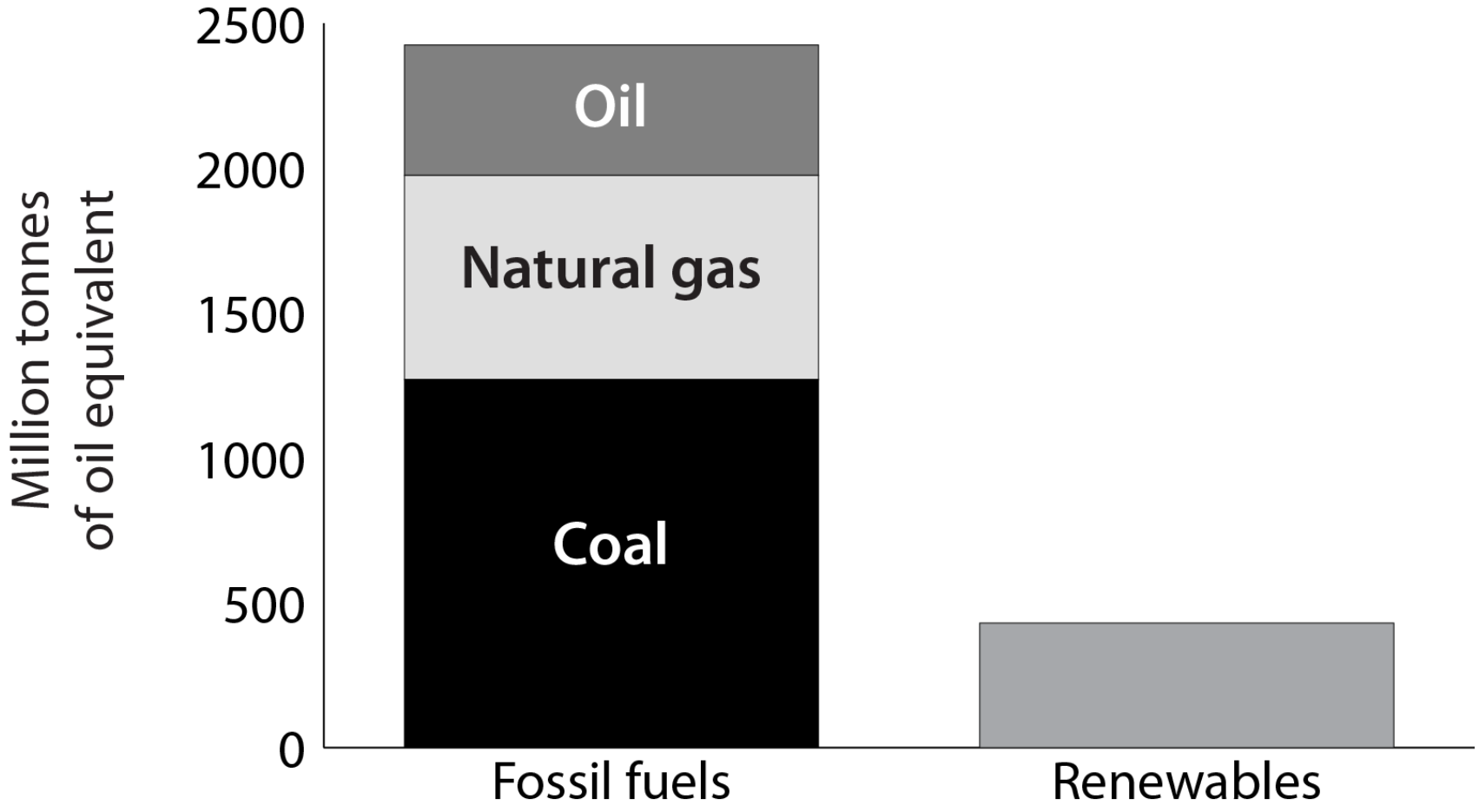
Tonight's journey



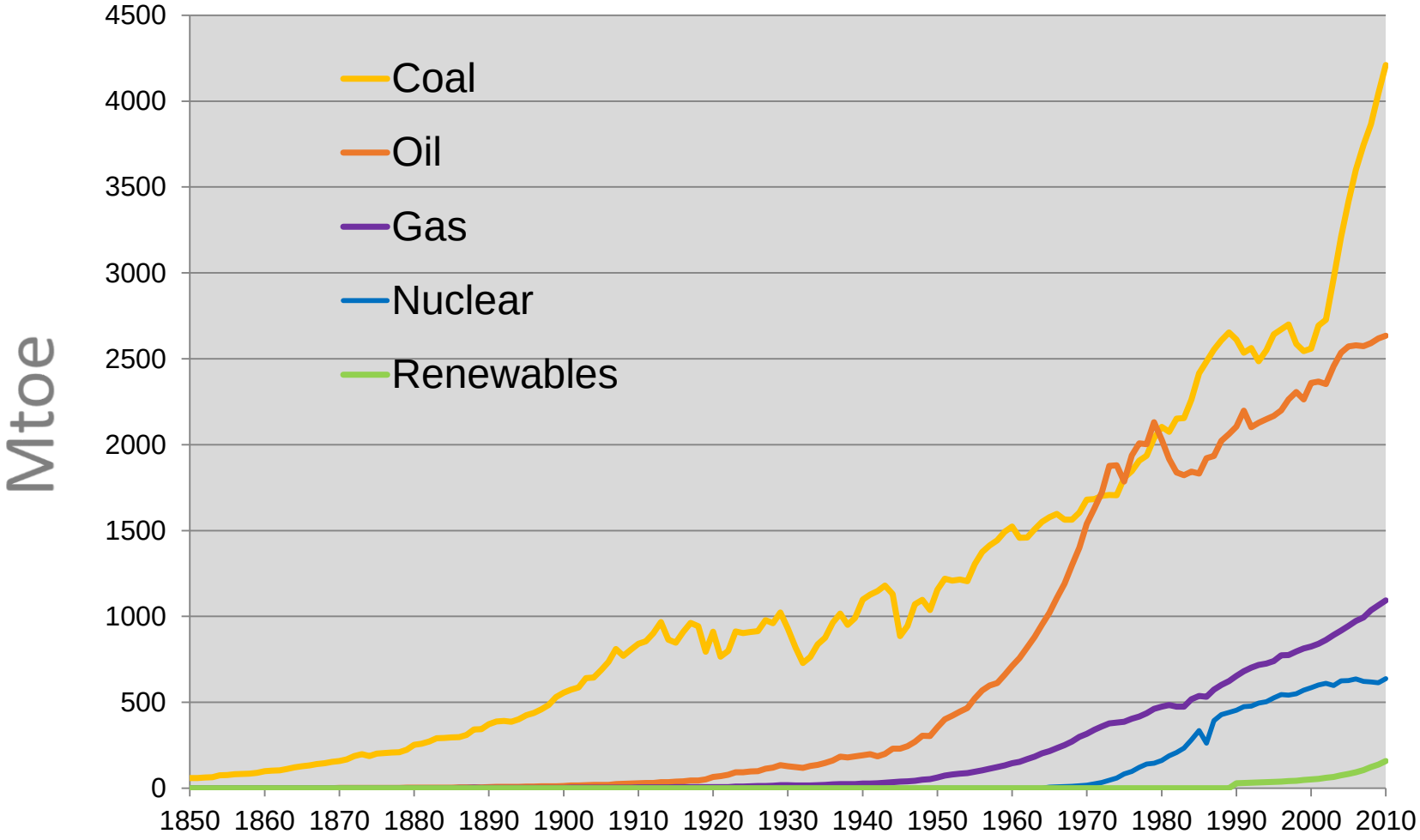
Why haven't renewables helped?

And what can we expect from them in the future?

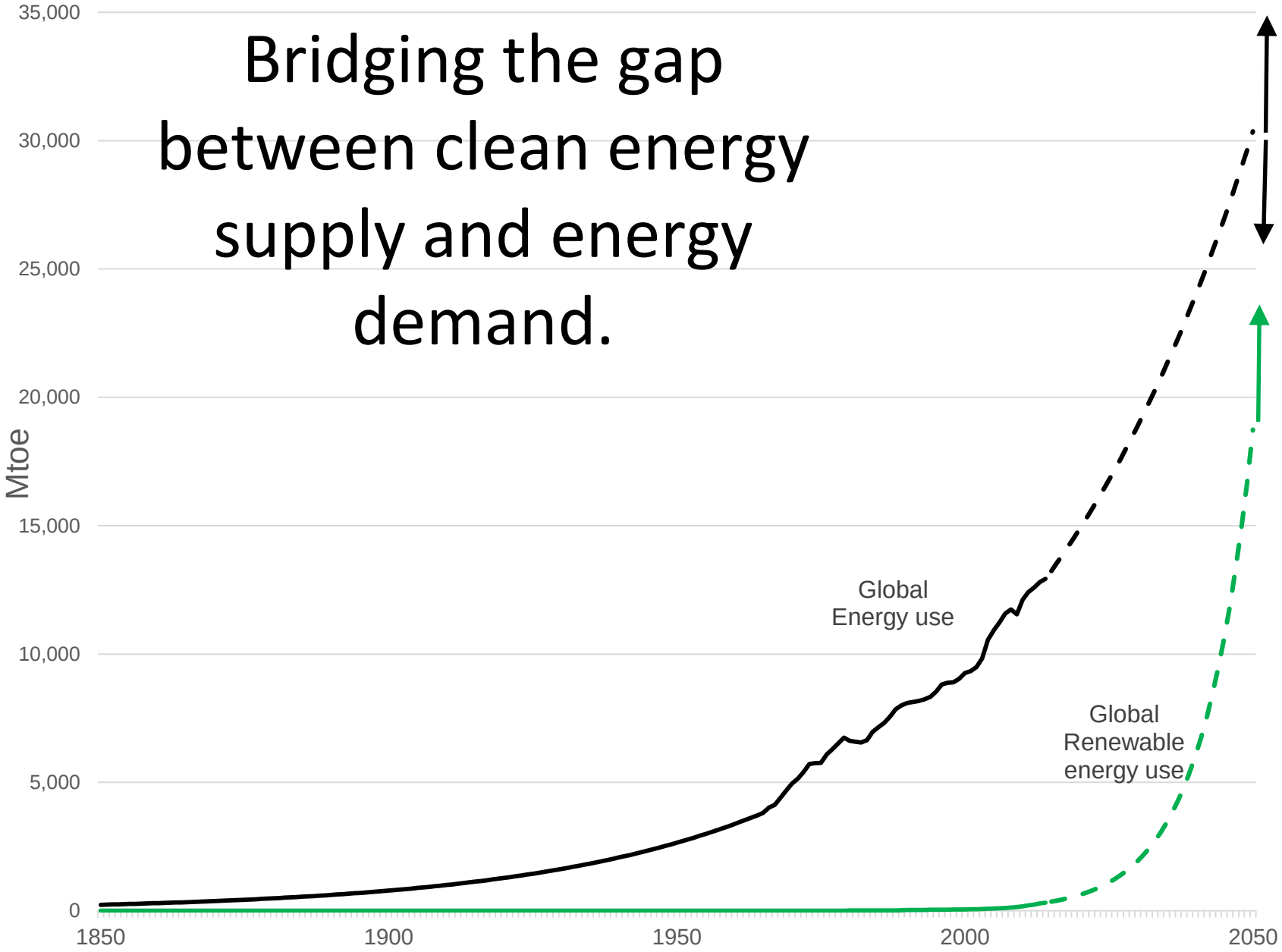
New energy capacity 2000–2011



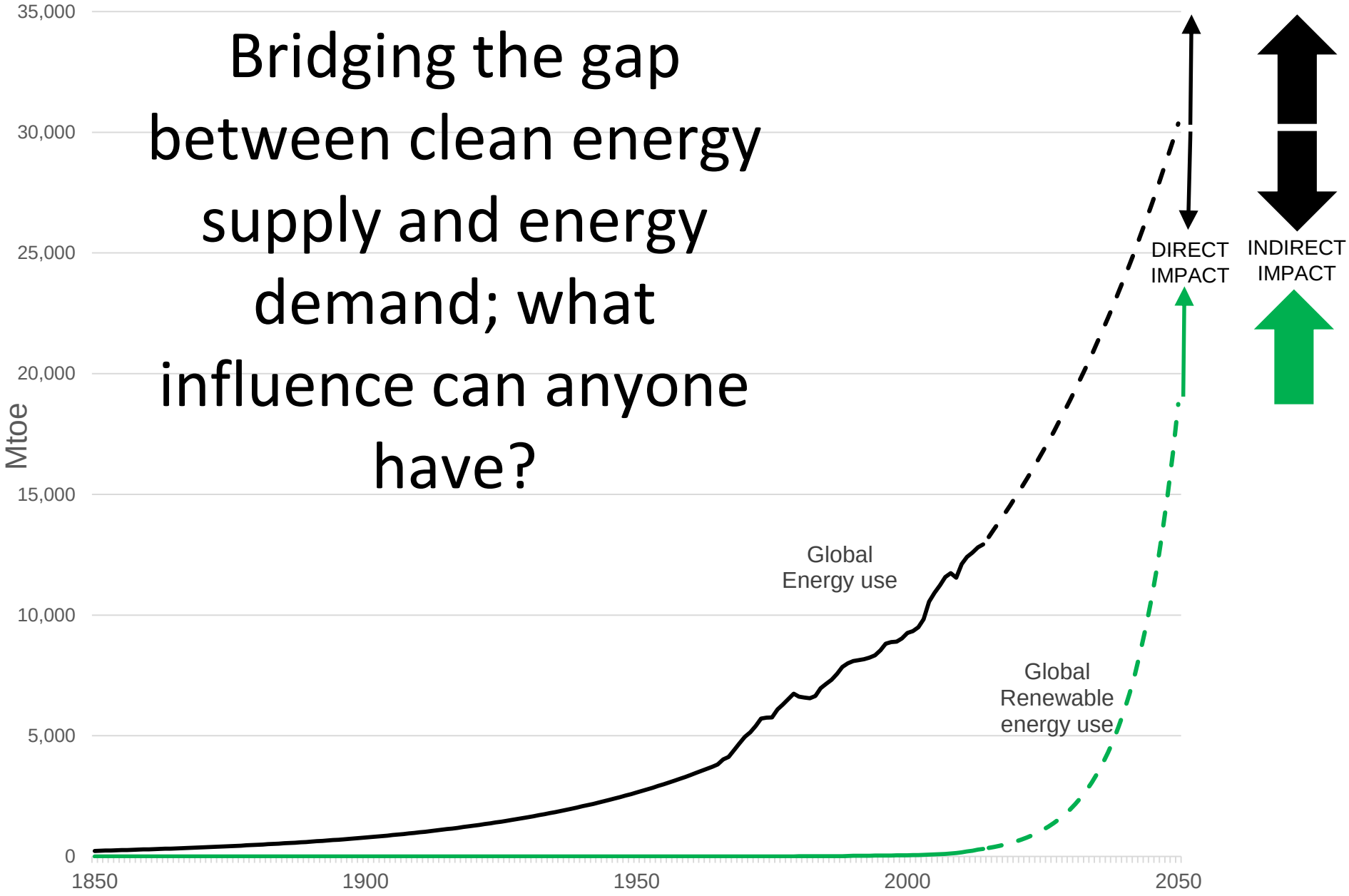
New energy sources have not usually replaced the old ones; we have stayed hungry for all energy forms however much we have had.



Bridging the gap between clean energy supply and energy demand.



Bridging the gap between clean energy supply and energy demand; what influence can anyone have?

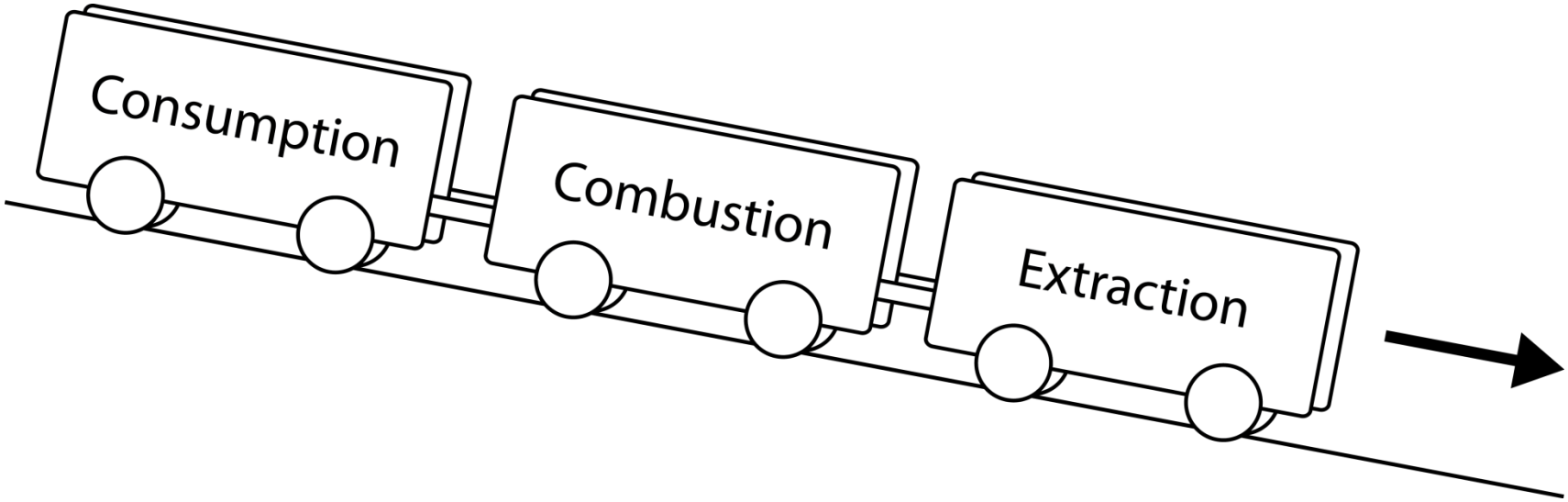


What about innovation and efficiency, national targets and personal carbon cutting?

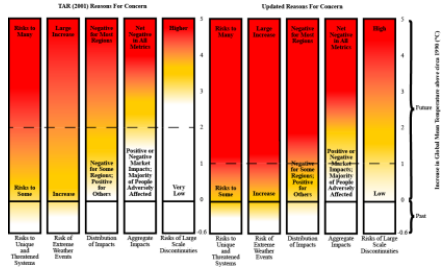
The Rebound Effect

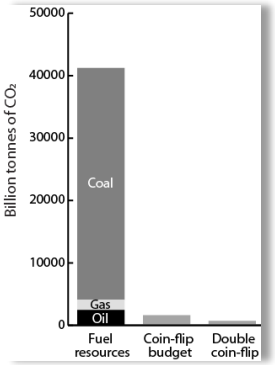
Local savings are like squeezing a balloon and efficiencies don't usually reduce impact

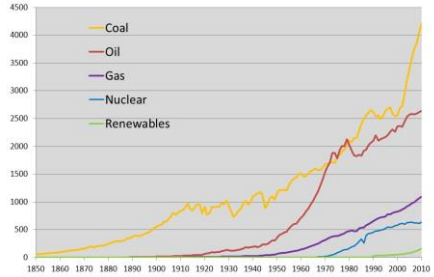
Everything we dig up gets burned

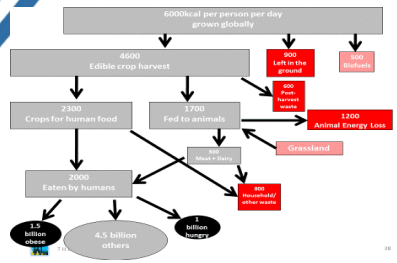


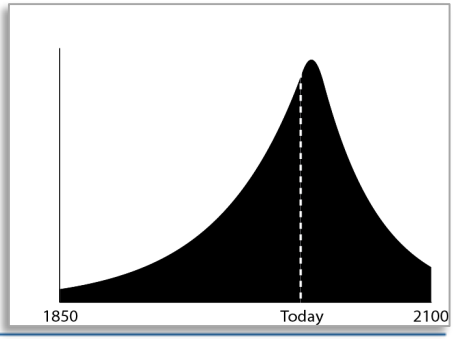
All this is clear…





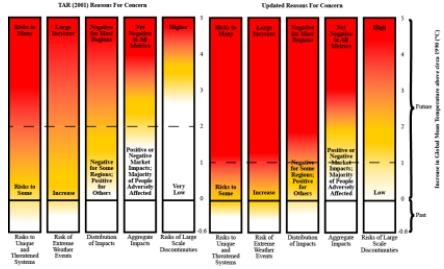


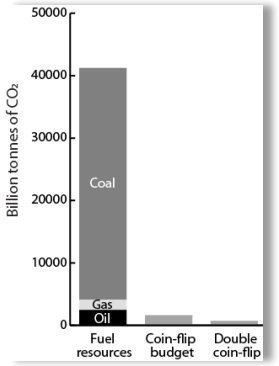


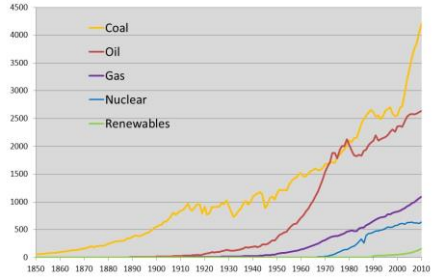


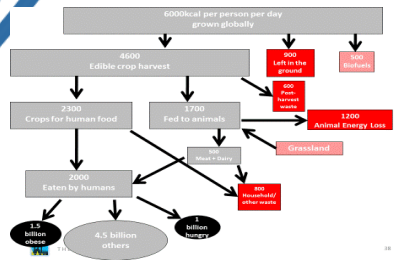
All this is clear…

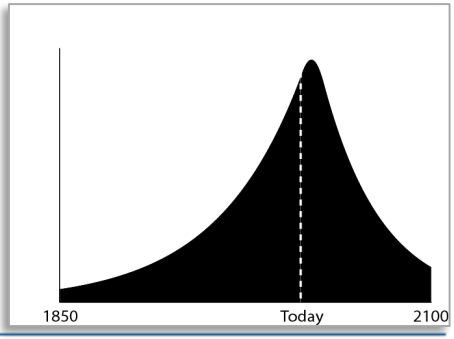
So clear that it leads us to wonder…











Why has the evidence been ignored for so long?

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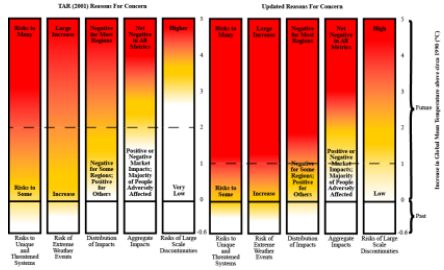
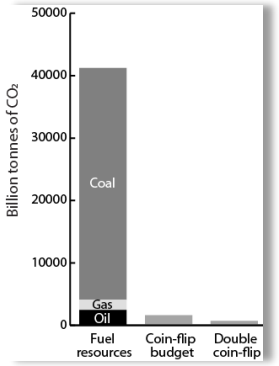
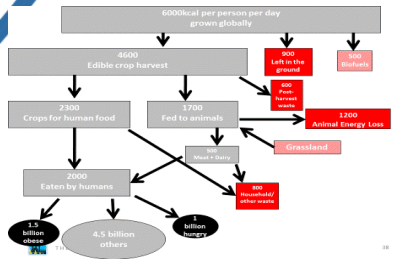
Paris

More Burning Questions…

- How can we wake each other up?
- Can we deal with climate change without dealing with inequality / social justice?
- How can we improve global governance?
- Do we need to rebalance human evolution?
- Is GDP growth a problem, a solution or an irrelevance??
- What is the role of micro actions in such a global problem?
- What can individuals do?
- What can this organisation do?


TAR (2001) Reasons For Concern
Updated Reasons For Concern
Risks to Many
Large Increase
Negative for Most Regions
Net Negative in All Metrics
Higher
Risks to Some
Increase
Negative for Some Regions; Positive for Others
Positive or Negative Market Impacts; Majority of People Adversely Affected
Very Low
High
Low
Future
Past
Risks to Unique and Threatened Systems
Risk of Extreme Weather Events
Distribution of Impacts
Aggregate Impacts
Risks of Large Scale Discontinuities


Billion tonnes of CO_2
50000
40000
30000
20000
10000
0
Coal
Gas
Oil
Fuel resources
Coin-flip budget
Double coin-flip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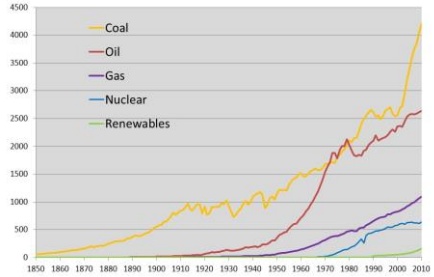
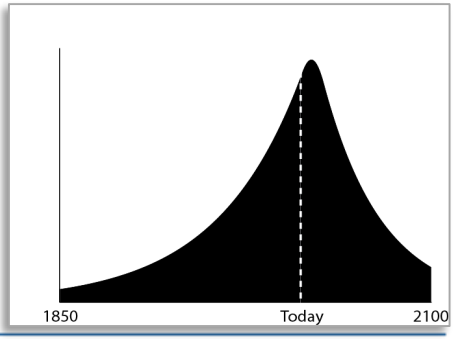

4500
4000
3500
3000
2500
2000
1500
1000
500
0
Coal
Oil
Gas
Nuclear
Renewables
1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010


1850
Today
2100

10000
8000
6000
4000
2000
0
1850
1900
1950
2000

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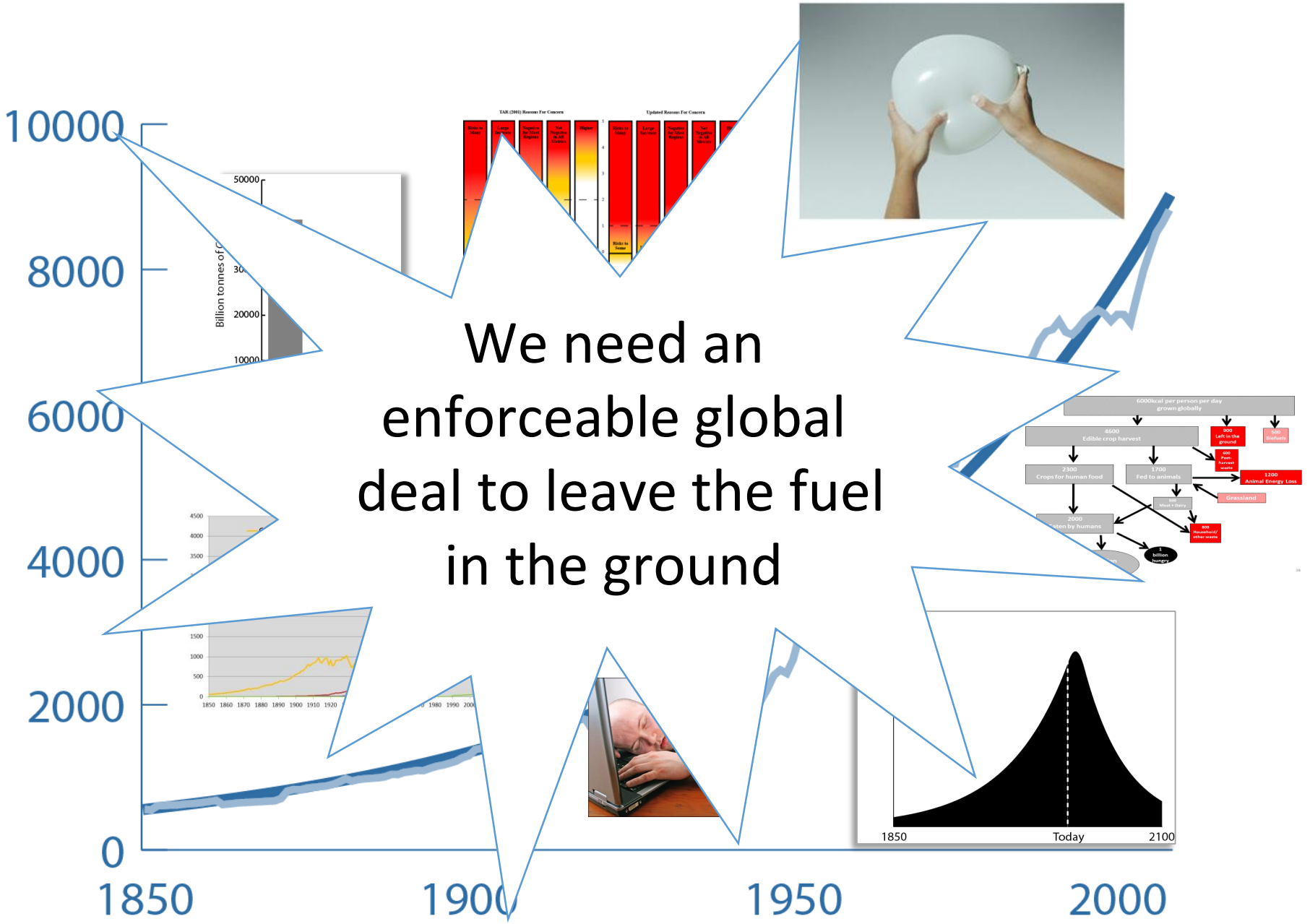
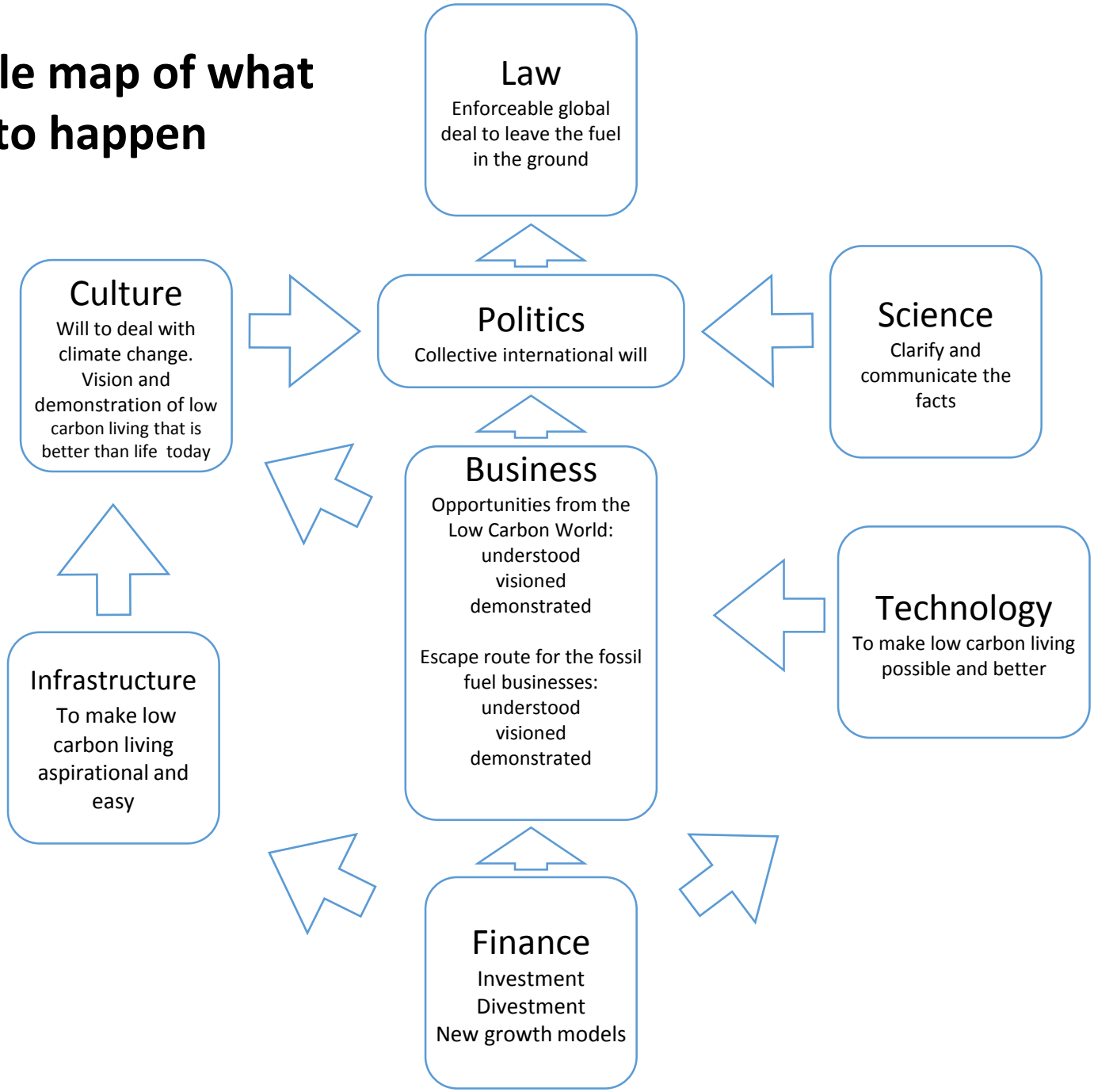
Paris

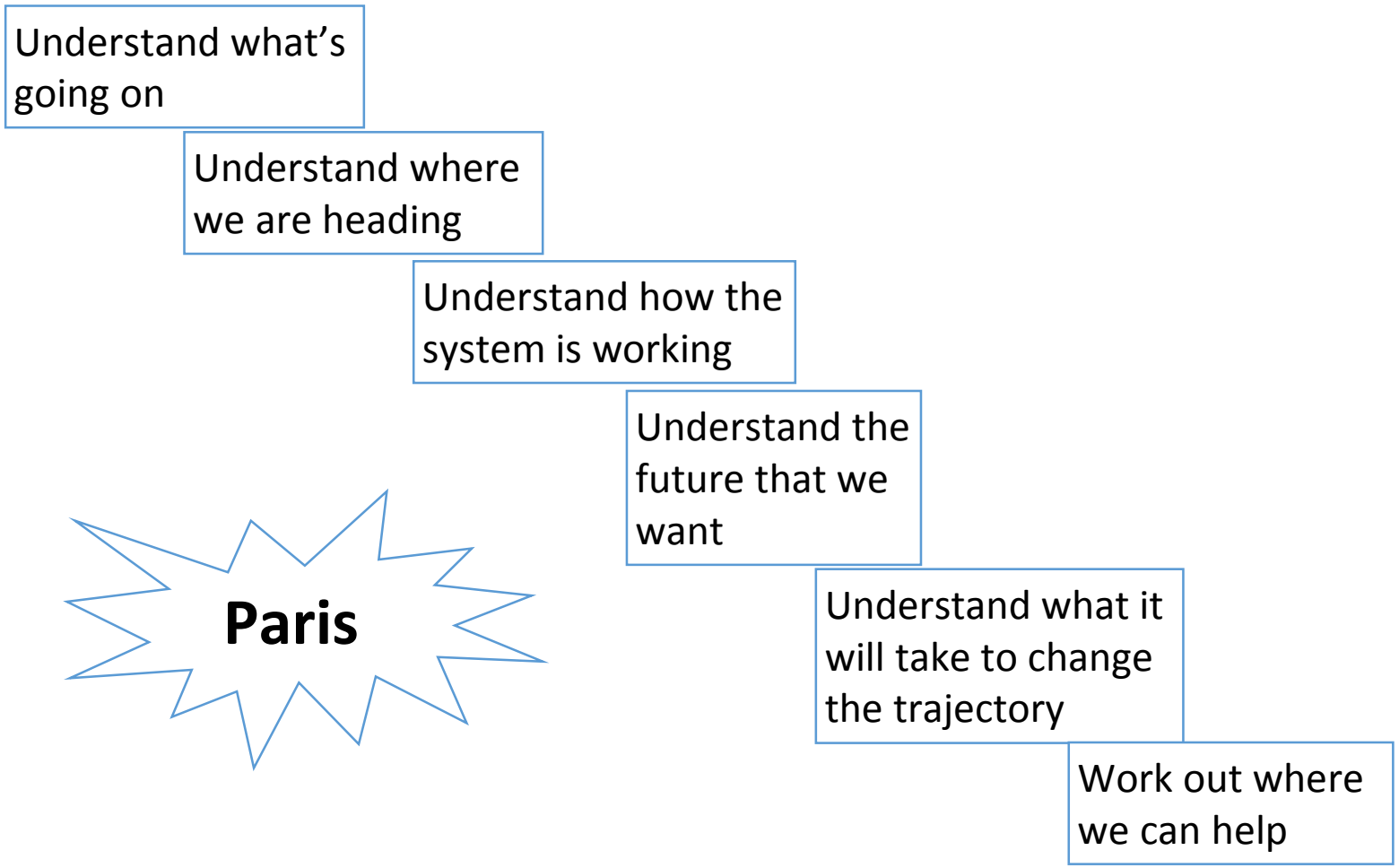


We need an enforceable global deal to leave the fuel in the ground

A simple map of what needs to happen



Tonight's journey



Paris

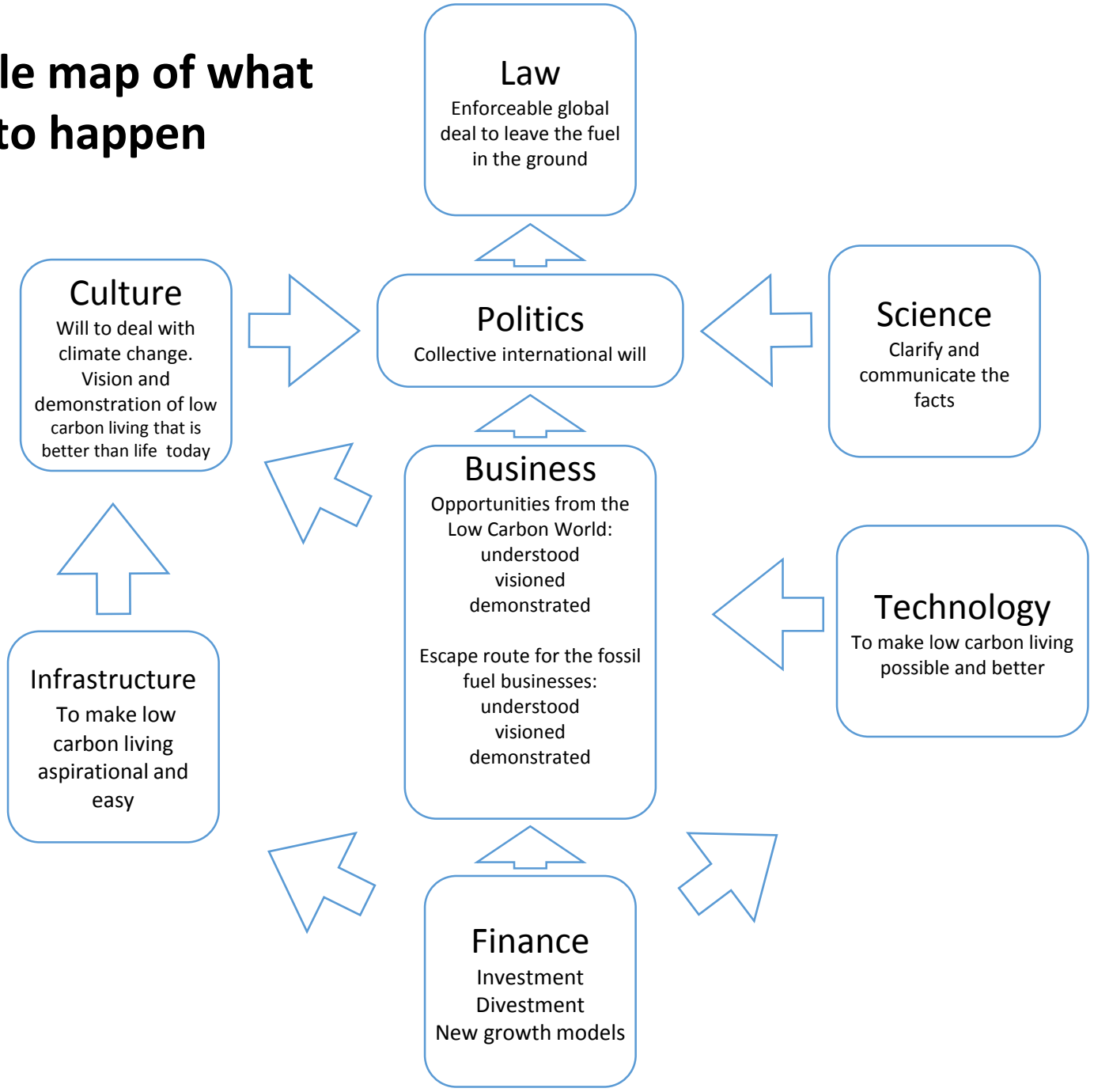
Likely outcome:

- Pledges adding to 50% change of 2.7 degrees ***if*** all pledges kept and slack not absorbed elsewhere.
- Possible ratchetting mechanism for improvements

How we should react:

- Celebrate a land mark moment: the fist time ever that human kind has shown signs of agency on the climate change challenge
- Highlight the gap and push for it to be closed ALL THE WAY
  - We need an ***enforceable*** deal for ***no more*** than 2 degrees even after inevitable slippage.
  - Anticipate and head off crazy side affects (such as biofuel replacing food)

A simple map of what needs to happen



Thank you for listening

Any questions?

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