Cost negative approaches to a carbon negative world

James Greyson Climate Rescue Centre

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our hero

Why carbon negative?

OOPS scenario

How carbon negative?

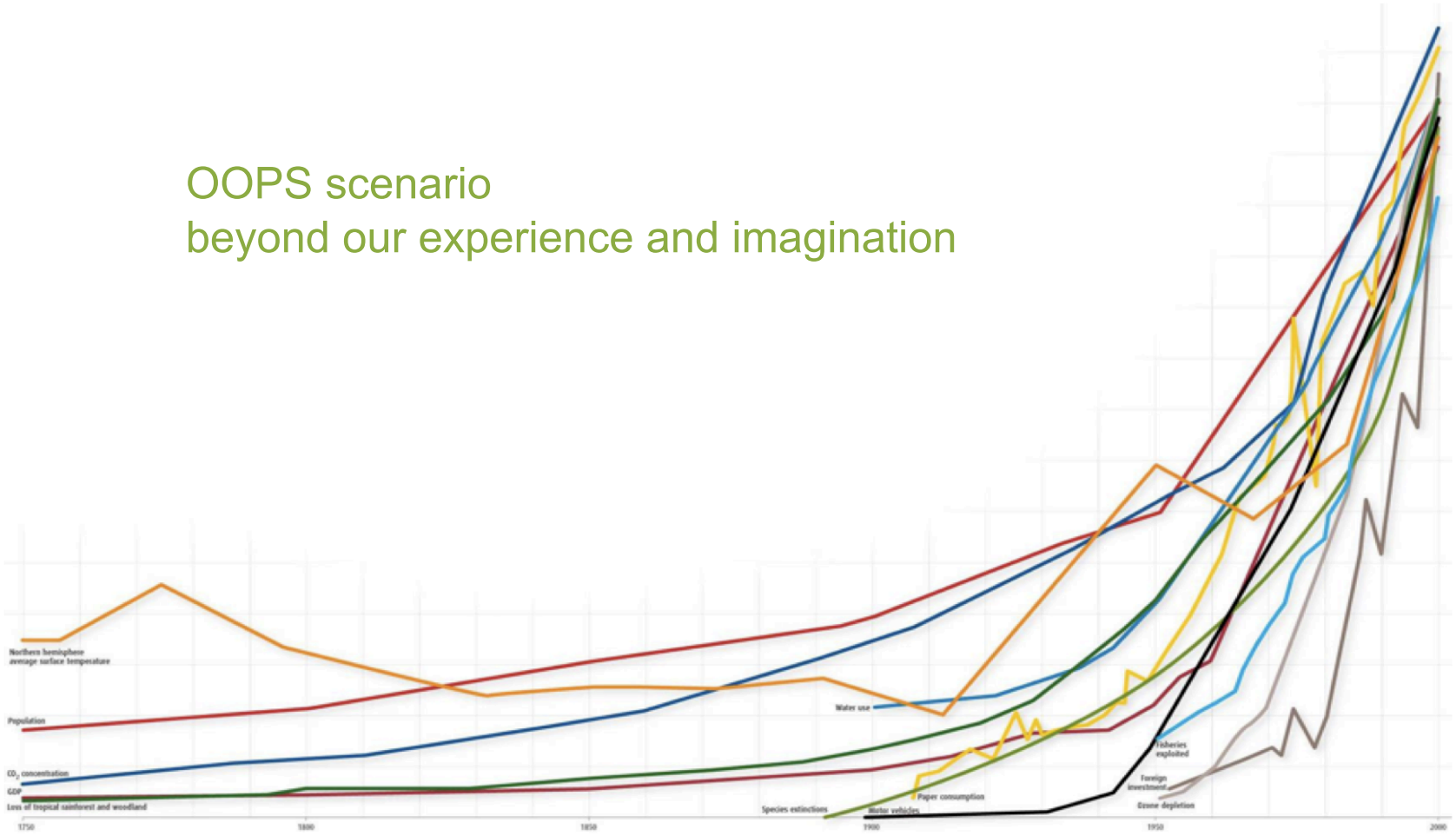
Stock and flow

Biochar

How cost negative?

1. Biochar economy
2. Costs to people
3. Costs to GDP

OOPS scenario
beyond our experience and imagination



Some of the trends: loss of forest, CO2 concentration, species extinctions, motor vehicles, ozone depletion, water use, paper use, Northern hemisphere average temperature, population, global real GPD. 1750-2000 New Scientist magazine, 16 October 2008, page 40-41

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OOPS scenario thinking

It's big, scary and complex so people choose an option to make it feel manageable.

Either business as usual, eg:
- Denial/skepticism
- Greenwash

Or solutions as usual, eg:
- Calls for action and funds
- Awareness raising and practical steps
- International meetings about improvement targets

Earth Systems Governance Op-ed on OOPS
http://ow.ly/t0q6f

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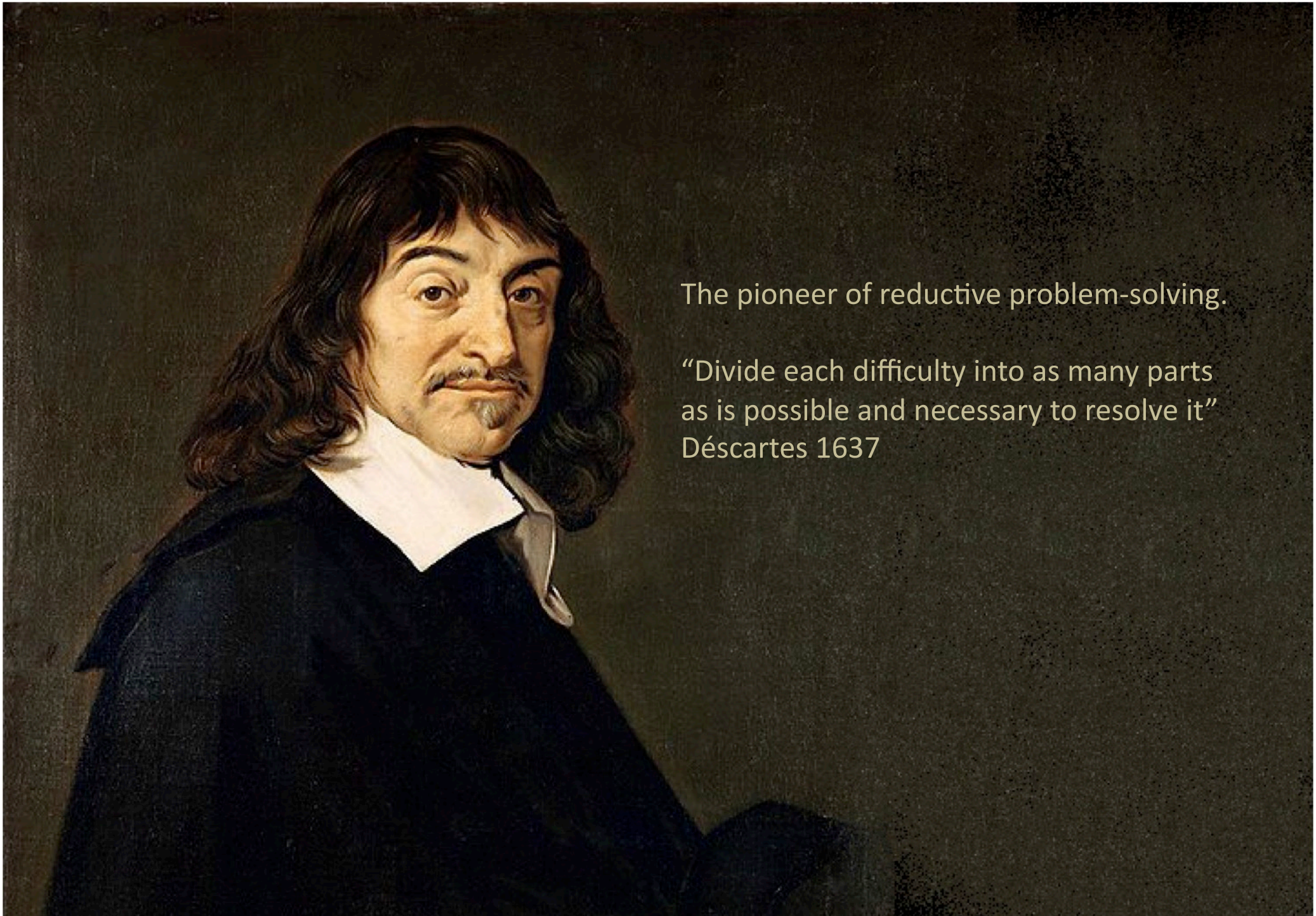

The pioneer of reductive problem-solving.
“Divide each difficulty into as many parts as is possible and necessary to resolve it”
Déscartes 1637

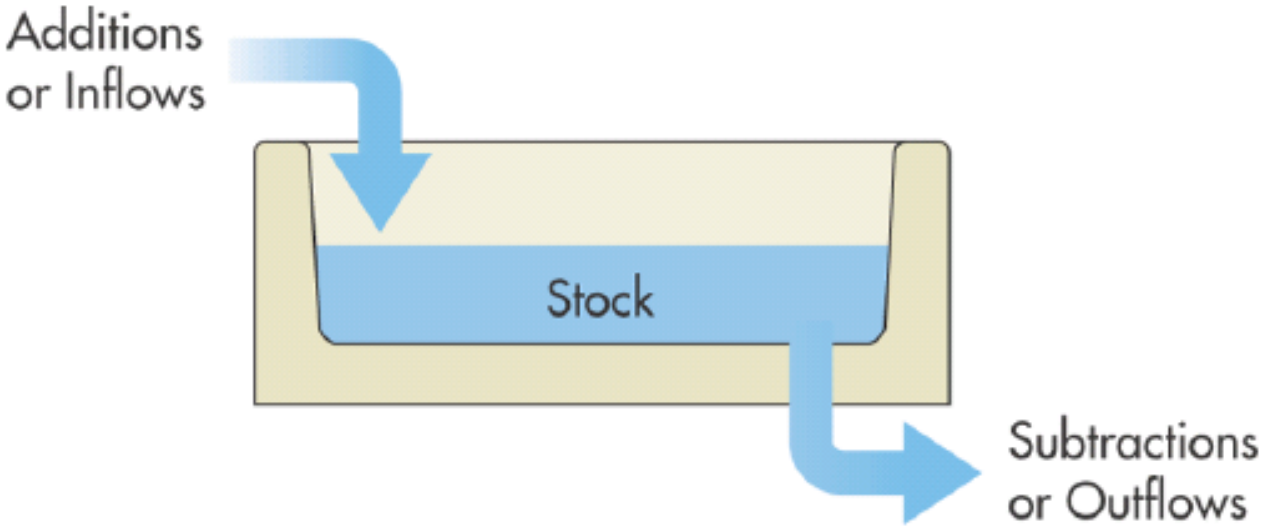
Climate Rescue thinking: non-reductionist

"…like picking up a tangled skein of wool; all the threads are interwoven - everything leads to something else."

First lady 'Lady Bird' Johnson 1970

Perception of the whole system enables system thinking.

Non-reductionism = manage the whole system



Climate science advises that impacts depend on stocks. Policy says, “oh you mean inflows. Let’s just talk about emissions.”

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Nasa scientist urges 'cut the waffle' on danger of global drought

Pollution threat of scorched Earth

Michael White in Washington and Tim Radford

agricultural experts warned that the world food stockpile could shrink to dangerously low levels over the next year, as

years by one degree C. The most pessimistic predict another four degrees C.

"I think the best estimate is

weather. That has a more reasonable physical basis but still we can't say that it is."

The week's Senate hearings

Jim Hansen in The Guardian June 25th 1988

"Political efforts to curb pollution, protect forests and avert climate change have proven totally inadequate."
Achim Steiner, UNEP executive director, Oct 2008

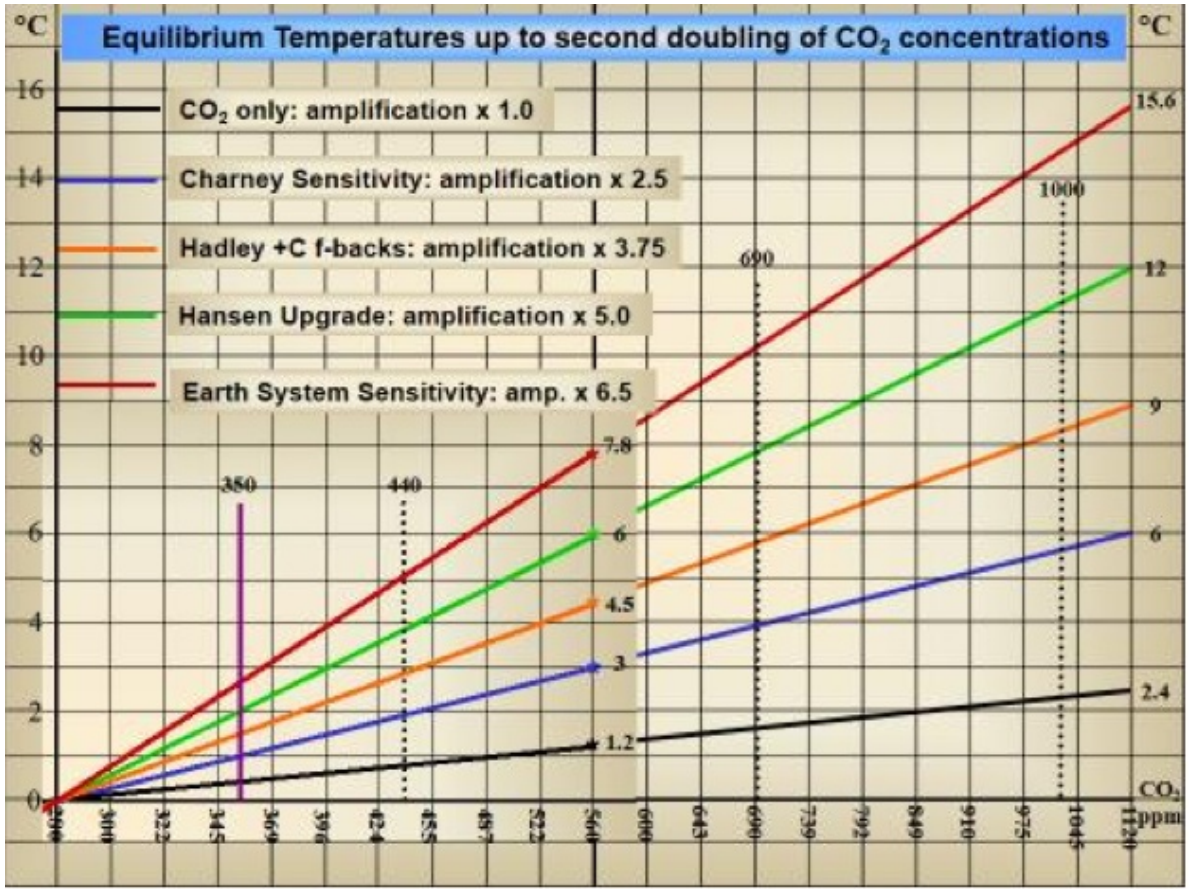
Toward international plans to cut concentrations

OECD 2013 calls for zero net emissions (~2050, for 550ppm 2C target). “Even small ongoing emissions will continue to add to the atmospheric concentration.” http://ow.ly/t2WVw

World Bank says 2C target means losing up to 80% of Africa’s current crop growing areas. Sea level rise 75cm. Natural disasters already up to $200b/yr globally. http://ow.ly/sYK7v

Matthews, Caldeira 2008 say “a stable global climate requires decreasing greenhouse gas levels in the atmosphere.” http://ow.ly/sYP4m

Urgency - led by science or politics?



"It is imperative we go to the carbon removal economy in the shortest possible time."

Club of Rome presentation by David Wasdell 2013
http://ow.ly/t1gqo

Blue line is climate models used in international talks.

Red lines are observed climate behaviour and equilibrium climate models that include feedbacks.

Climate Rescue: how to go carbon negative?

Stock problem = accumulated problem legacy

GHG concentrations

(+ ecological debt + financial debt + cultural baggage +...)

Climate chaos is led by the stock problem.

Use biochar to reverse climate/food/eco insecurities.

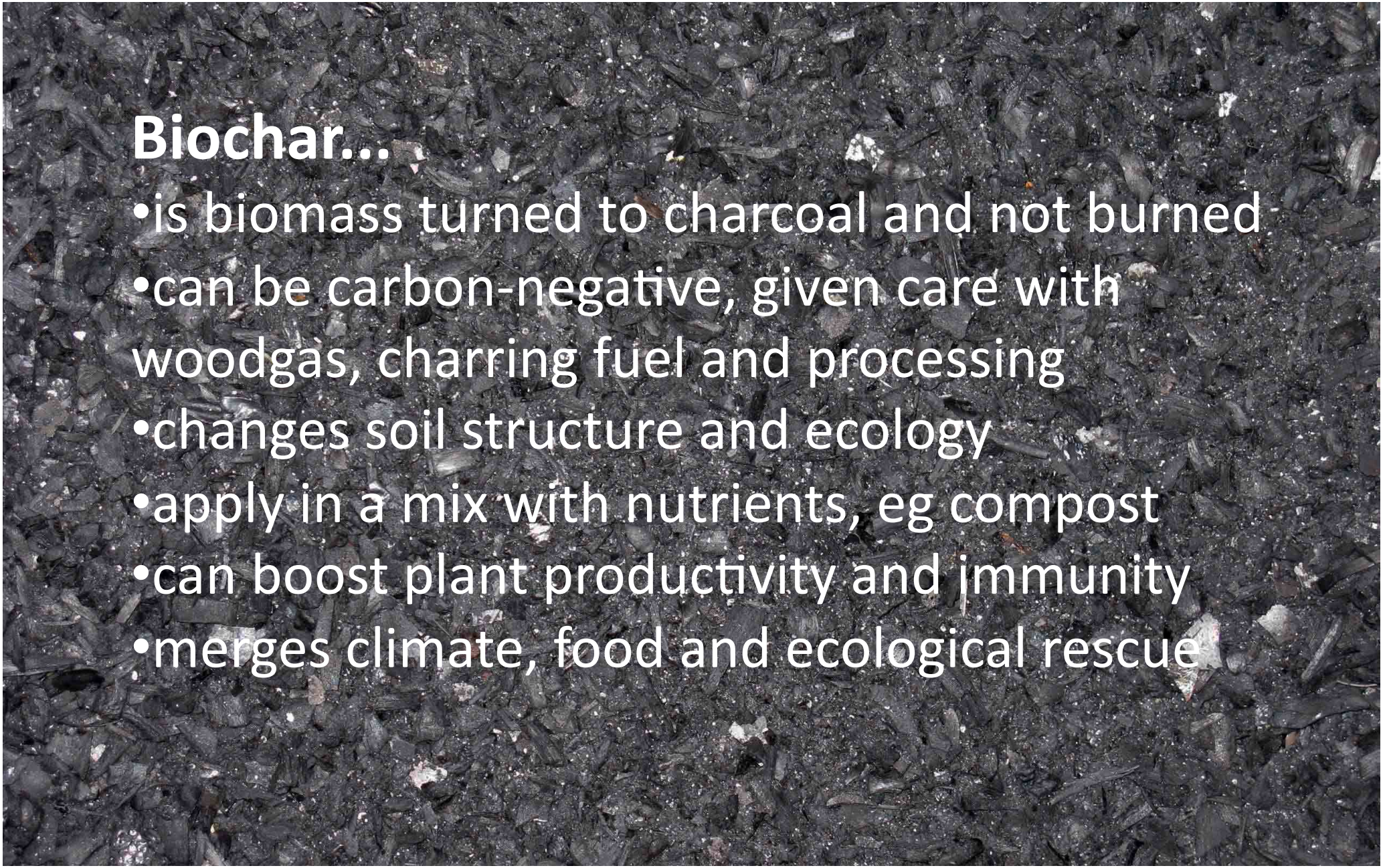
Flow = ongoing system behaviour

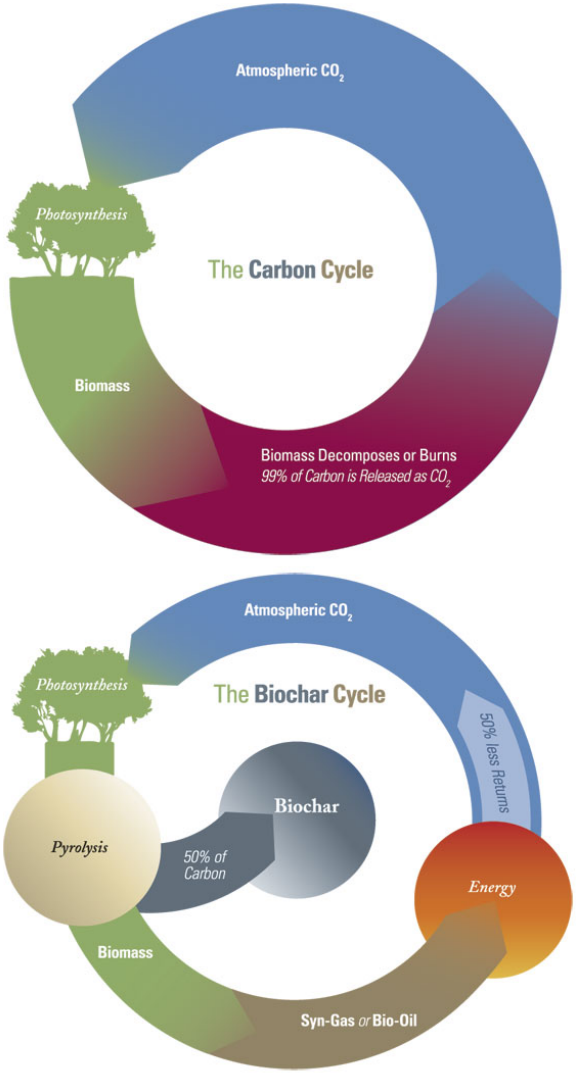
GHG emissions

(+ policy levers set to worsen all interlinked issues)

Climate policy is led by the end of pipe of the flow problem.

Biochar is not enough.


Biochar...
•is biomass turned to charcoal and not burned
•can be carbon-negative, given care with woodgas, charring fuel and processing
•changes soil structure and ecology
•apply in a mix with nutrients, eg compost
•can boost plant productivity and immunity
•merges climate, food and ecological rescue



Cycles include a linear flow

- Biodegradable biomass becomes non-biodegradable
- Carbon is removed from the air
- Carbon is stored in the soil
- Soil health and productivity rises
- More biomass (trees/food) grows
- Repeat
- Scale up
- This reverses the linear flow of fossil fuel carbon being stored in air

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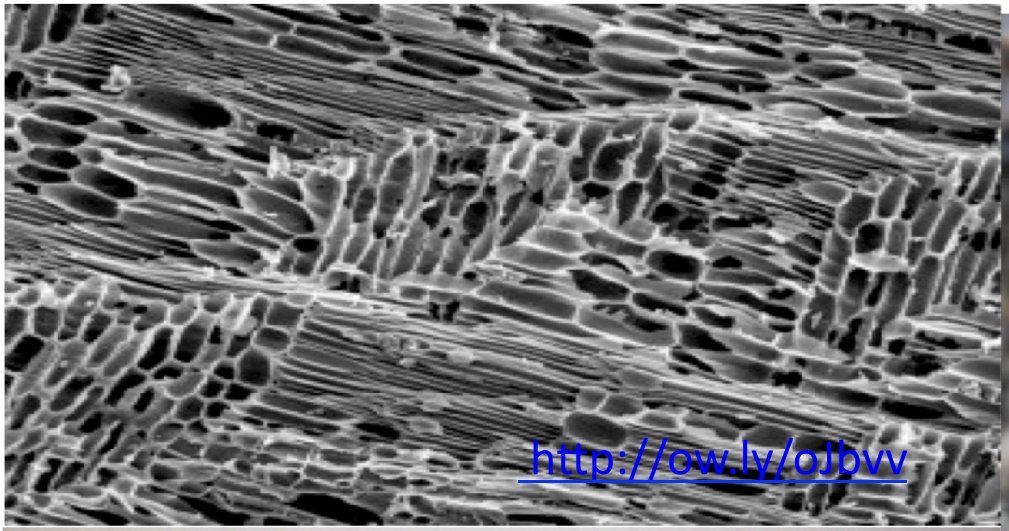
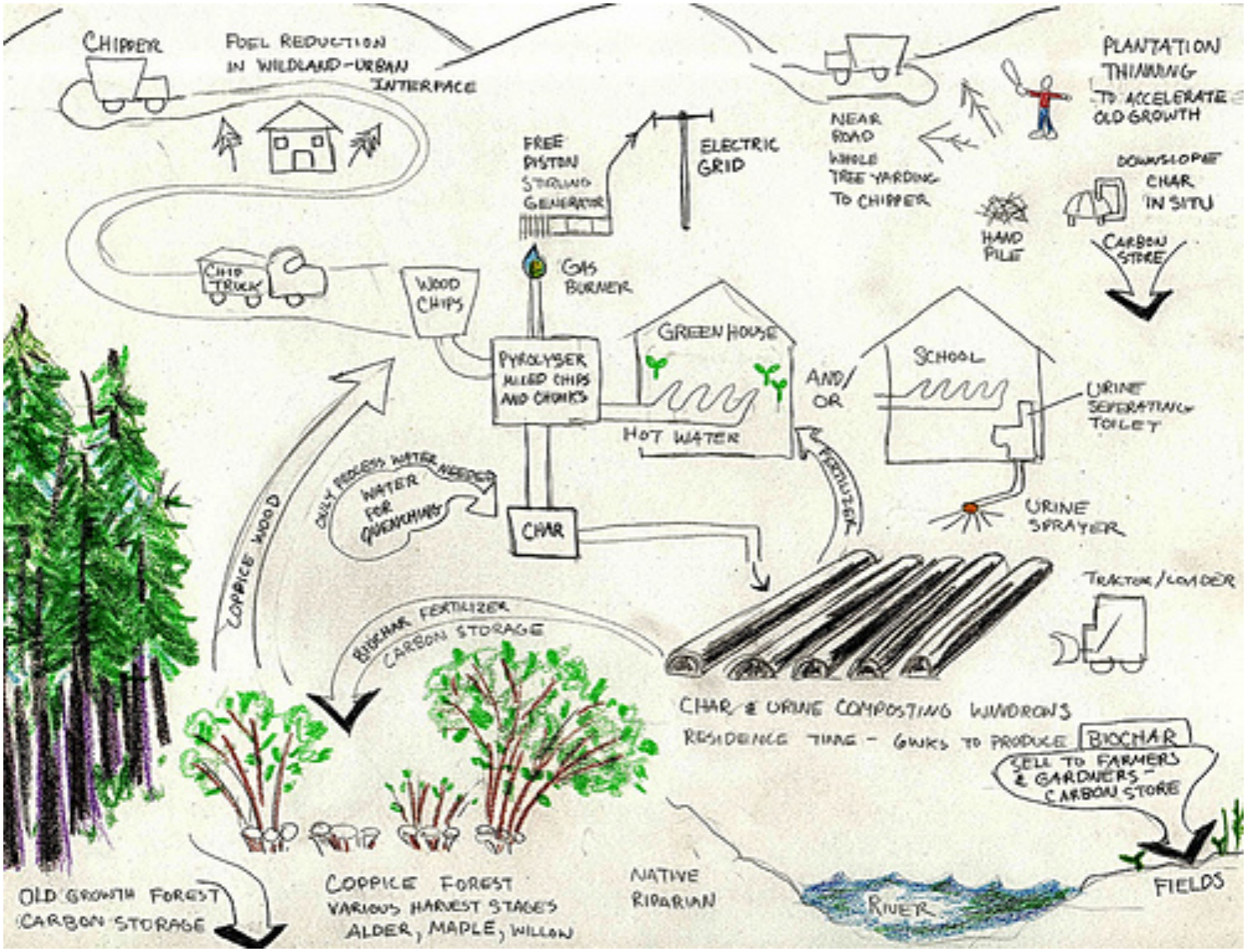


http://ow.ly/oJbvv

http://ow.ly/oJbo8

http://ow.ly/oJc2E

http://ow.ly/oJadI



1. Cost-negative = biochar economy

local activity
involving biochar
+
local currencies
+
enable globally
=
sustainable new
money supply
+
vast carbon-negative
enterprise

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Carbon negative is child's play

- 9 year olds built this!

- Cook by making charcoal not burning it
- Supply energy by removing carbon not adding it
- Grow food by building soils not depleting
- Incentives to plant trees not cut them
- All this activity brings in money rather than costing money

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2. Cost-negative = less costs to people

Tactics:

- spend/invest onto lower cost path,
- eg insulation
- spend/invest to avoid wipe out costs,
- eg flood protection, insurance
- spend time to avoid costs,
- eg biochar cooking, grow food
- transfer money from problems to solutions, eg from fossil fuel subsidies

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3. Cost-negative = lower costs to GDP (or gains!)

1. Stern 2006 says BAU will cost 5-20% of GDP every year. He calls for 25% cut in emissions by 2050 for 550ppm 2C target at cost of ~1% of GDP. http://ow.ly/sZqrw
2. UNEP 2011 says "greening of economies is not generally a drag on growth but rather a new engine of growth". +15% GDP compared to BAU in 2050. http://ow.ly/sZhih
3. Anderson 2012 says, "Avoiding dangerous climate change demands de-growth strategies." http://ow.ly/sZqcc
4. Degrowth assumes the same 'growth engine'. New engine means seeking growth by building (not losing) the conditions for growth. http://ow.ly/t02dI

Radical climate strategy = radical growth strategy

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Biochar in a carbon-negative climate rescue

- Biochar is one of the ways to get surplus carbon out of the air.
- Cookstoves are one of the ways to make biochar.
- Cookstoves/biochar can be scaled up in 'biochar economies'.

Biochar is part of a climate rescue. Must also...

1. Reverse the loss of ecosystem carbon sinks. #planetlever 5
2. Net-zero emissions via circular economy. #planetlever 3
3. Resolve the interlocked global problems, eg debt/austerity, conflict, poverty/ inequality, waste/toxics. http://ow.ly/t0pz6

All this could be cost-negative in different ways, so can we do it now?!

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Thank you!

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