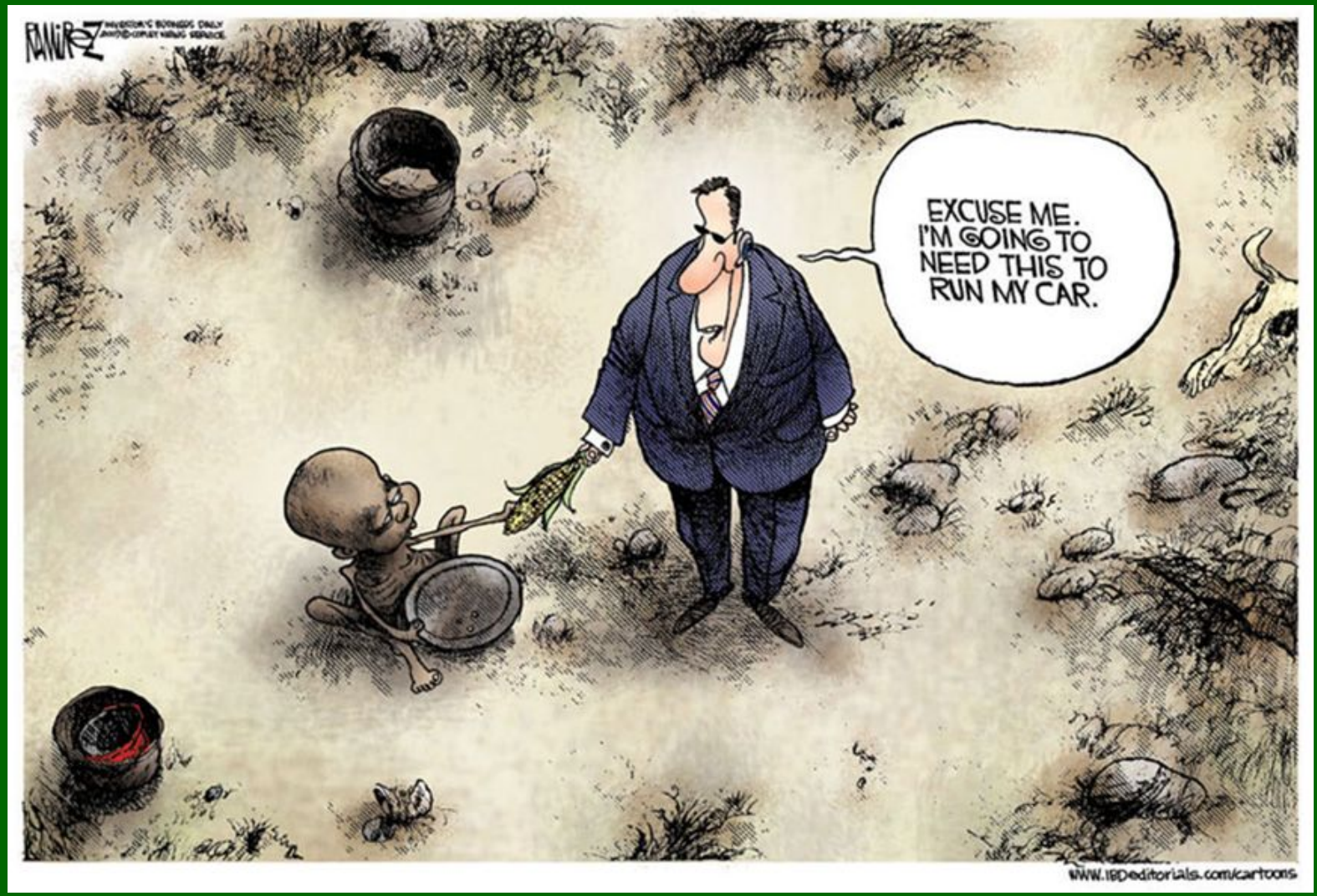
From BAD to MAD – How UK and EU policy is bio-fuelling a disaster



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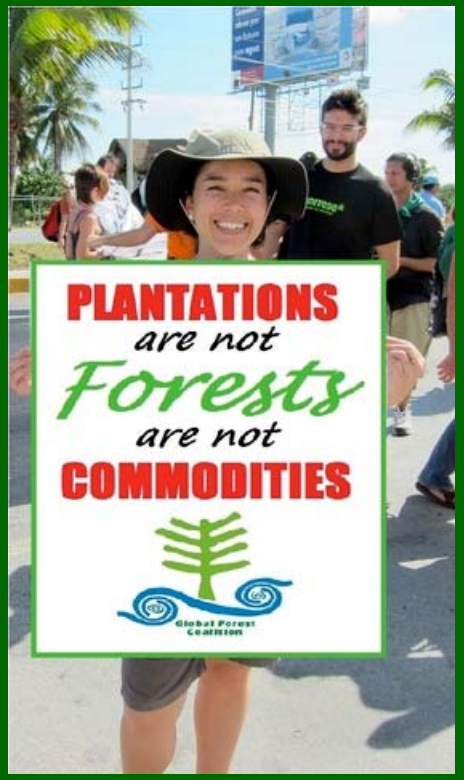
Biofuelwatch campaigning

Part of Global Forest Coalition

www.globalforestcoalition.org



BFW Focus areas

- UK – power, aviation and heat sectors
- US – power sector (solid biomass)
- Human rights impacts
- Biochar

www.biofuelwatch.org.uk

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Policies

- EU 20-20-20
- EU Renewable Energy Directive
- EU Fuel Quality Directive
- UK Renewable Transport Fuel Obligation
- UK Renewable Obligation
- UK Renewable Heat Incentive
- Gallagher Review

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Generation type	ROCs/MWh
Hydro-electric	1 [150]
Onshore Wind	1 [151]
Offshore Wind	1.5 [152]
Wave	2
Tidal Stream	2
Tidal Impoundment – Tidal Barrage	2
Tidal Impoundment - Tidal Lagoon	2
Solar Photovoltaic	2 [153]
Geothermal	2
Geopressure	1
Landfill Gas	0.25
Sewage Gas	0.5
Energy from Waste with CHP	1
Pre-banded gasification	1
Pre-banded pyrolysis	1
Standard gasification	1
Standard pyrolysis	1
Advanced gasification	2
Advanced pyrolysis	2
Anaerobic Digestion	2
Co-firing of Biomass	0.5
Co-firing of Energy Crops	1
Co-firing of Biomass with CHP	1
Co-firing of Energy Crop with CHP	1.5
Dedicated Biomass	1.5
Dedicated Energy Crops	2
Dedicated Biomass with CHP	2
Dedicated Energy Crops with CHP	2

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UK Bioliquid Power Stations

Bioliquids – Straight Vegetable Oil or Biodiesel

- 4 permitted power stations – 93MW
- 7 proposed power stations – 124MW
- Annual fuel consumption – 325,000 tonnes
- Annual ROCs subsidy - £150m
- Cropland 110,000 ha
- Industry hype – 1000 power stations providing **a quarter of all UK electricity**

Yet a Govt report shows that bioliquid electricity has worse emissions than electricity from natural gas

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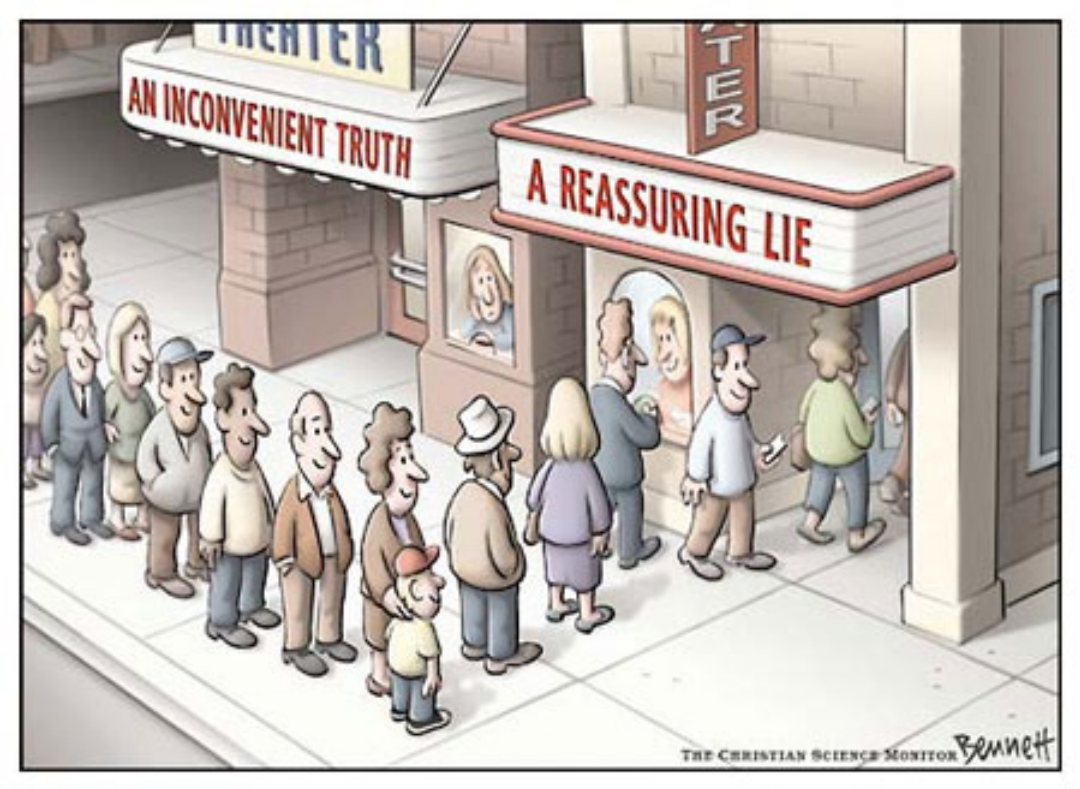

There is enough wood to keep the lights on

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UK NREAP fantasy

Solid Biomass power generation

- in 2015 1290 MWe generating 7990 GWh
- in 2020 3140 MWe generating 20590 GWh

(assuming all fuel is wood, 100MWe burns approx 1 million tonnes ODT pa)

Fuel demand in 2012 = 12.9 million tonnes

Fuel demand in 2020 = 31.4 million tonnes

NREAP estimates 6 million tonnes of waste wood is land-filled pa.

Forestry Commission estimates 2 million tonnes additional wood from unmanaged woodland

Deficit = at least 24 million tonnes pa in 2020

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Announced UK Solid Biomass Power Stations

Proposals to 2020:

- Generating capacity - 5.2GW (NREAP said 3.2)
- Annual fuel consumption – 50-60 million tonnes
- Annual ROCs subsidy - £2.5bn
- At an optimistic yield of 10 tonnes per ha, the land area cleared every year = 5 to 6m ha
- Total UK Utilised Agricultural Area = 8.9 m ha

Drax hopes its future lies in carbon-lite biomass, hence why it more than doubled its biomass burn from 400,000 tonnes to 907,000 tonnes. The fact this remains a fraction of its 9.4m tonne 2010 coal usage is indicative of government support, or lack of it,

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RWE Tilbury B Power Station

- Capacity burning coal – 1200MW
- Due to close 2015/16 under Large Plant Directive
- Plans approved 14 March 2011 to convert to wood pellet
- No EIA or scrutiny by IPC or DECC
- Capacity burning wood – 750MW, 5000GWh pa
- Fuel burn – up to 7 million tonnes pa. EU consumption just 9 million tonnes in 2010
- Fuel sources include USA, Canada and Australia
- Annual ROCs subsidy – up to £400m

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UK NREAP fantasy

What is the estimated role of imported biomass up to 2020? Please specify the quantities expected (ktoe) and indicated possible import countries.

Our research looked at the potential supply of imports to 2020 and beyond. The analysis showed that the amount of global woody biomass resource could potentially be very large. This is based on the assumption that they are grown predominantly on abandoned agricultural land, with demands for land for food and for first generation biofuels feedstocks being supplied first. Achieving this potential would rely on a swift increase in energy crop planting. ***We have not estimated what proportion of bioenergy output will be from domestic sources and what proportion will be from imports.***

Table 8: Current UK agricultural land use for production of crops dedicated to energy in 2006

Agricultural land use for production of dedicated energy crops	Surface (hectares)
1) Land used for short rotation trees (willows, poplars)	4196
2) Land used for other energy crops	5316

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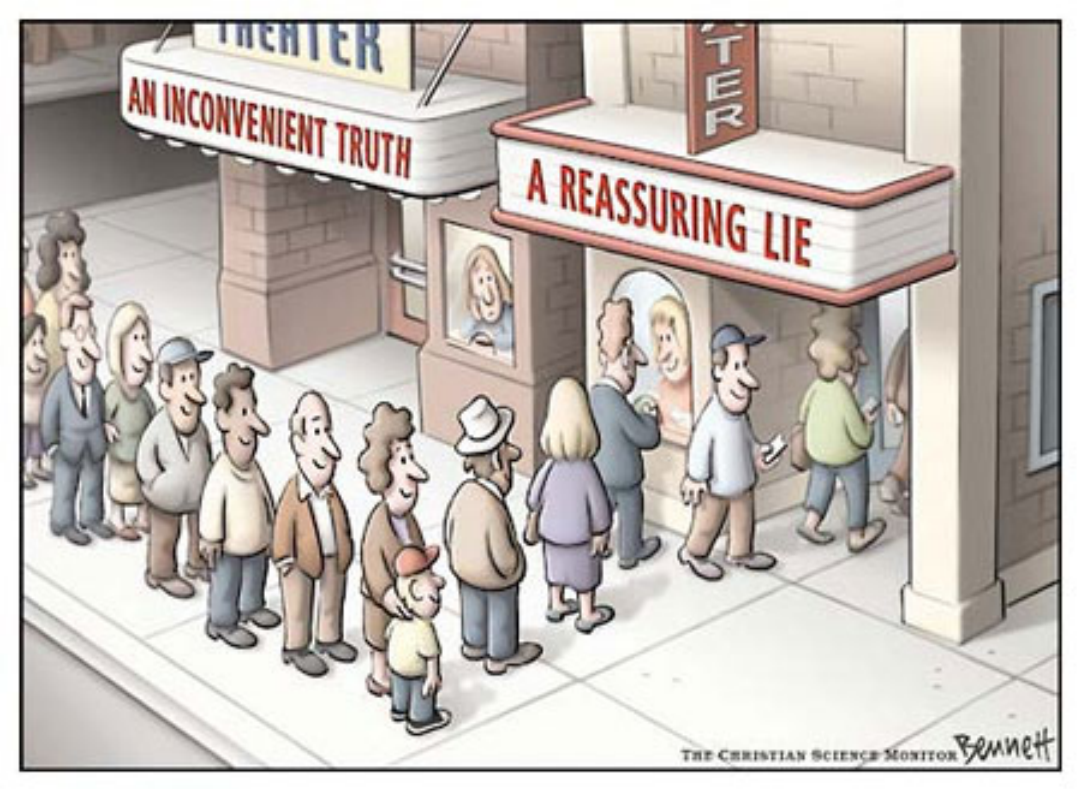

Governments can manage biomass sustainability

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Biomass sustainability - how hard can it be?

No policy tool can give certainty that forests will be regenerated after biomass is harvested.

Option A5 would require evidence of managing the forest sustainably, however such evidence is difficult to verify without globally agreed common requirements on sustainable forest management.

European Commission 2010

The UK Government has no way of imposing, or enforcing, a standard for sustainability on forestry operations in other EU Member States or third countries, and to do so could involve an unlawful restraint of trade

DECC 2010 *(Defence of Judicial Review of Helius Avonmouth)*

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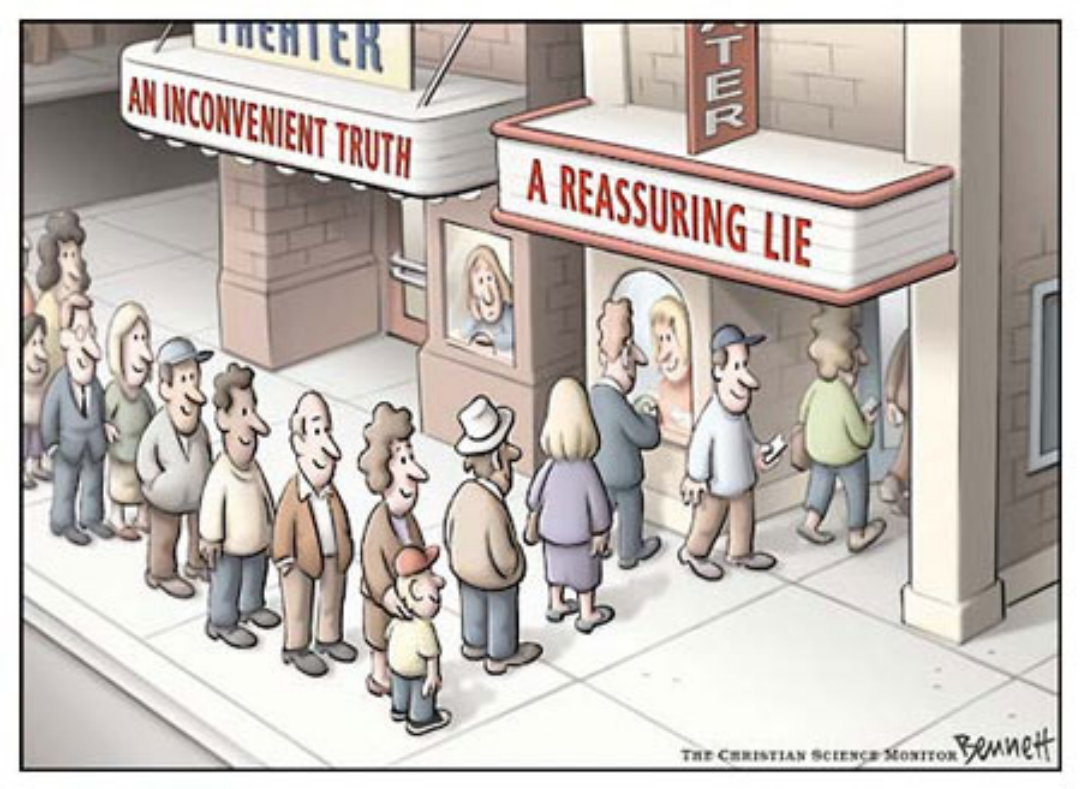

Biomass is carbon neutral

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Land Use Change and Carbon Debt

Fargione / Gibbs:

- Palm oil on SE Asia Rainforest – 30 to 120 years
- Palm oil on SE Asia peatlands – 840 years
- Soya on Amazon forest – 320 years

Bioenergy causes losses of carbon to the atmosphere from vegetation and soils when biomass is harvested. And biofuels cause losses of carbon to the atmosphere when land is converted - either directly or indirectly - to meet the increased demand for agricultural crops.

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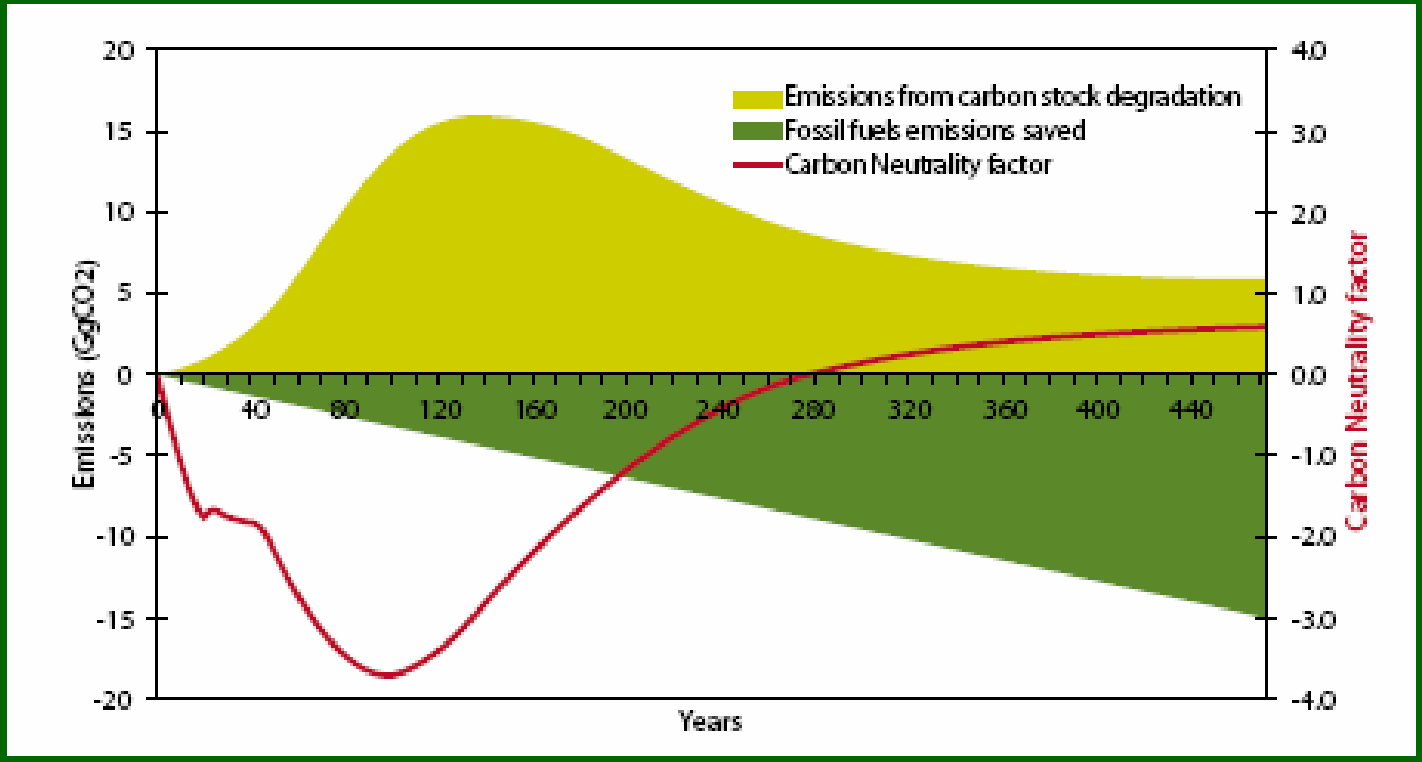
Carbon Debt - additional felling in a typical European managed forest



Wood used to replace coal in power generation. The red line shows the carbon neutrality factor: biomass use leads to increased emissions for the first two and a half centuries.

Joanneum Research, June 2010

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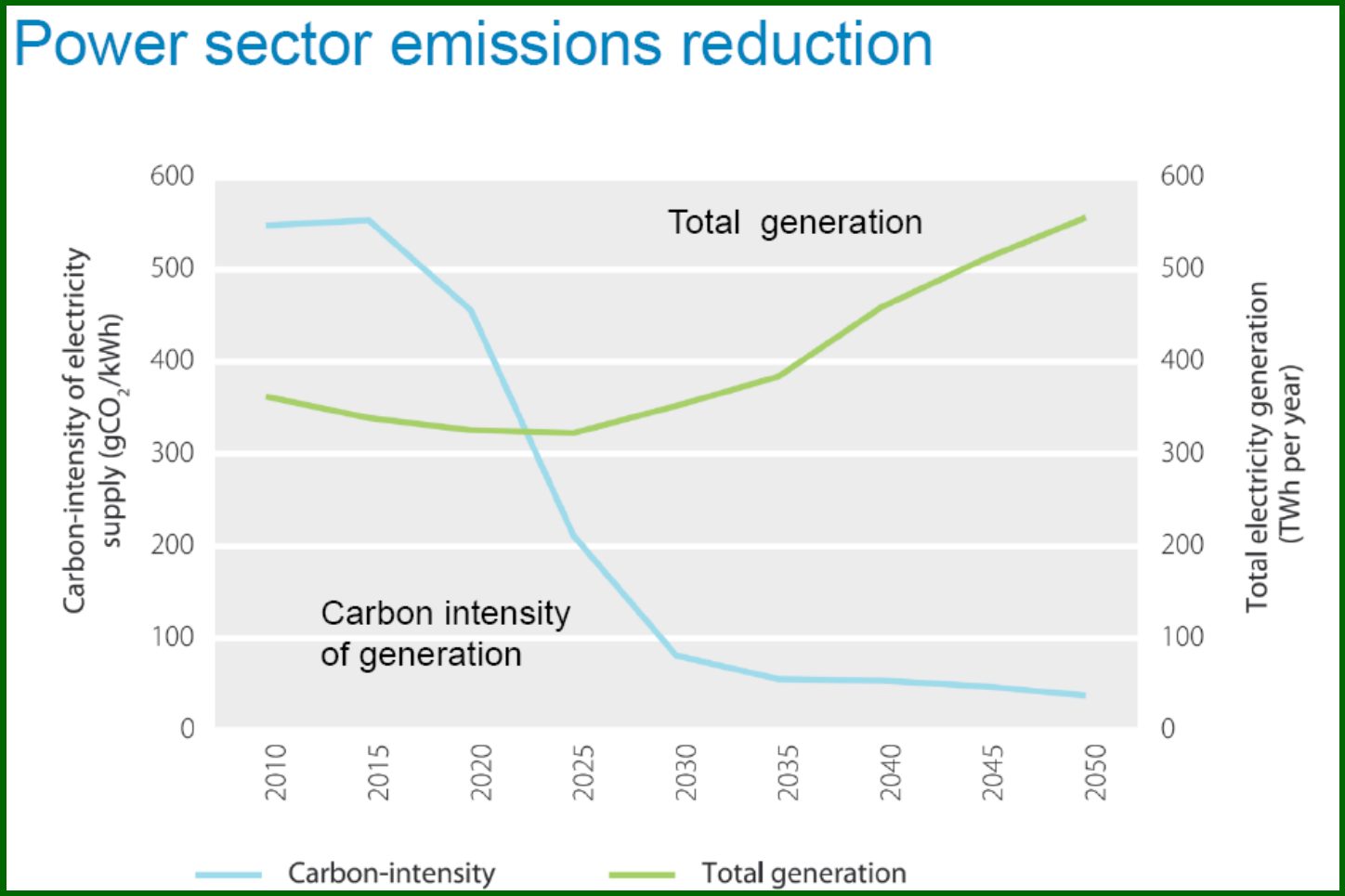
UK Grid carbon intensity



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UK Grid carbon intensity

- By 2025, overall grid intensity must be less than 200g CO_2 / kWh

Committee on Climate Change

- Wood for electricity is ROC–eligible with carbon intensity of up to 285 CO_2 / kWh *

DECC

* Note – DECC measurement excludes long term carbon debt

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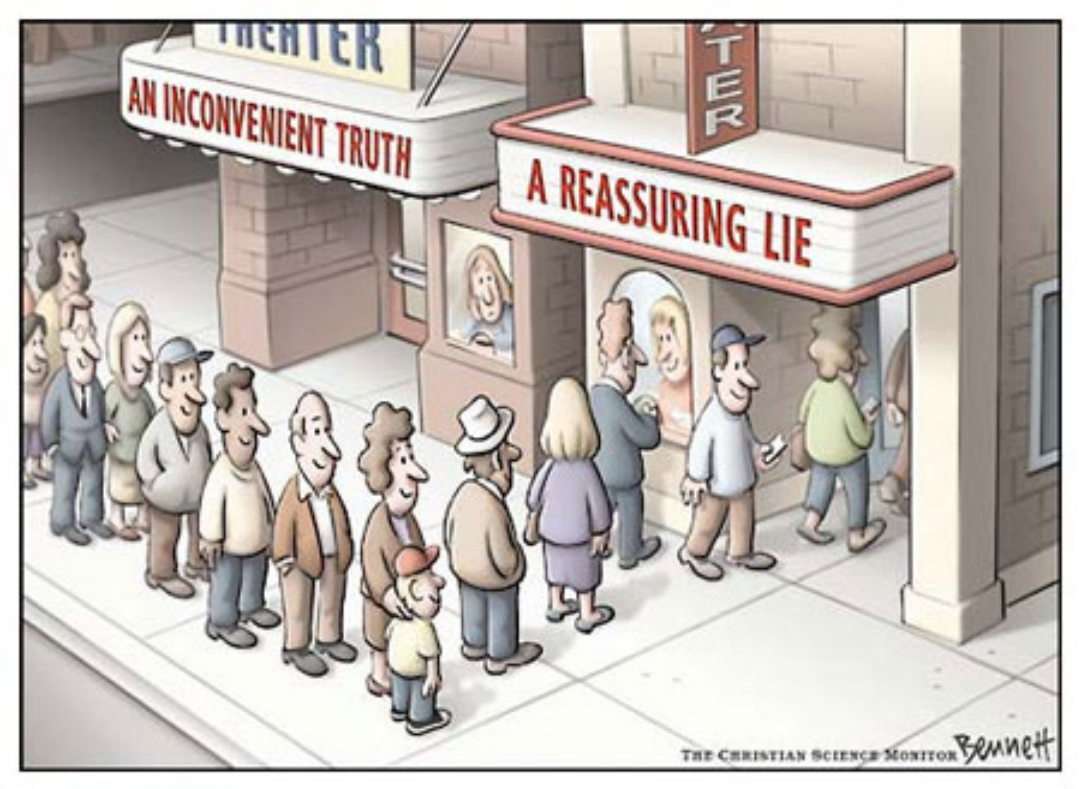

Biofuels don’t compete with food

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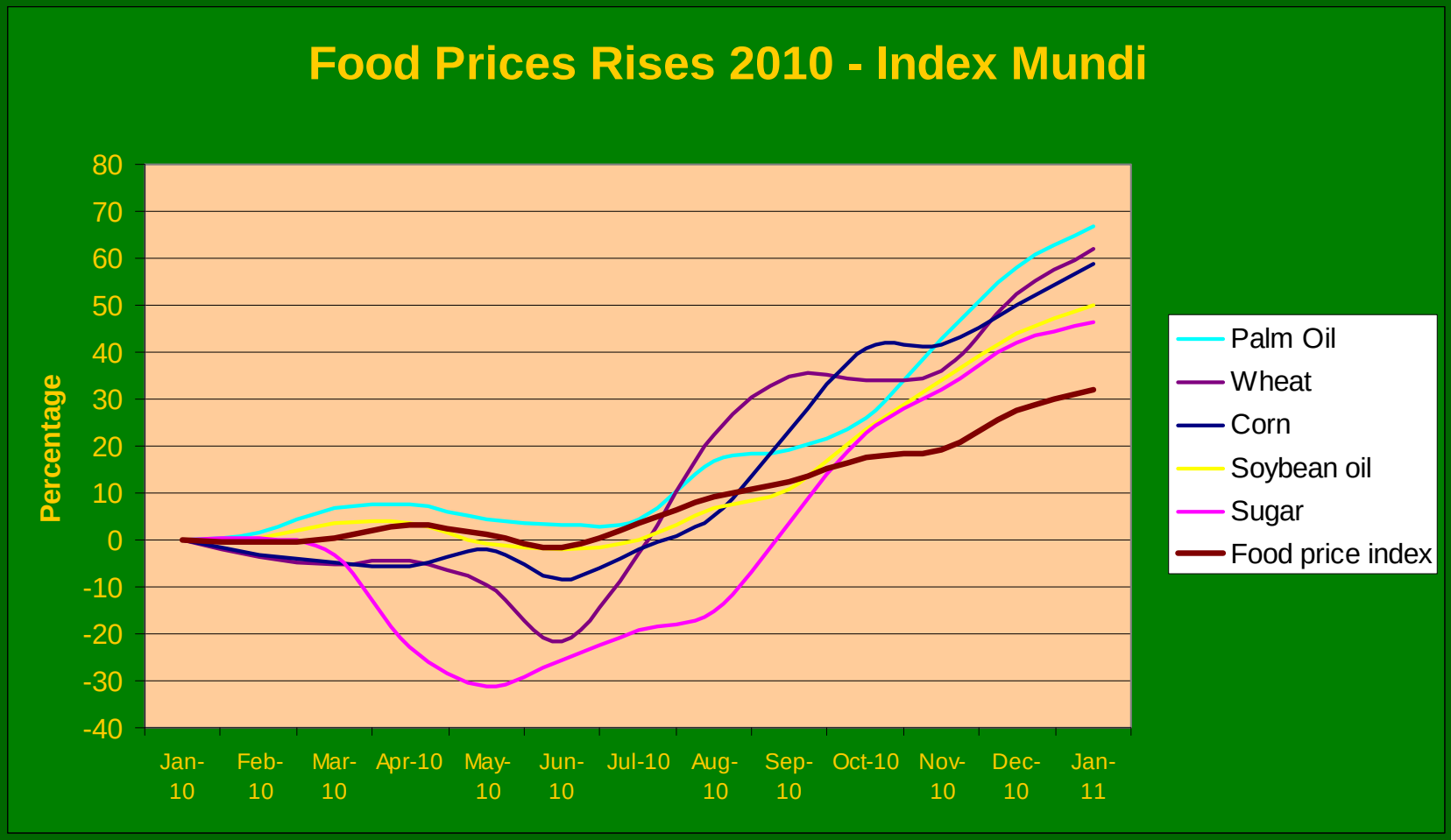
Food Prices



Wheat prices rose 130% in 2008 as oil went to $140 per barrel.

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Food Prices in the news

As corn prices near record high, brace for steeper prices on food

February 10, 2011 Associated Press

Food price boom puts palm oil on emerging markets' radar

Reuters Fri Feb 4, 2011

Food costs at records as U.N. warns of volatile era

Reuters Feb 3, 2011

Food and energy shortages will create 'perfect storm', says Prof John Beddington

March 2009

Phuket palm oil frenzy amid shortage fears

Friday, February 18, 2011

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Bioenergy and Human Rights

EU Sustainability Criteria for biofuels don't protect human rights and food sovereignty

60m indigenous people wholly depend on forests and 1.6bn people partially depend on forests

- *Who owns the forest?*
- *Consultation, persuasion and broken promises*
- *Conflict*
- *Jobs and prosperity*
- *Water and pollution*
- *Destroying Cultures*

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Bioenergy and Human Rights

- Land grabs common in countries where tropical biofuels are produced – Indonesia, Colombia, Honduras
- Clean Development Mechanism encourages creative accounting
- Environmental Impact Assessments not done
- Indonesia admits 80% of oil palm plantations in one province are illegal
- Soy and Palm are already problems – Jatropha coming next?

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Scale

The key issue, says Searchinger, is scale. He points out that even if we used "*every piece of wood on the planet, every piece of grass eaten by livestock, and all food crops, that much biomass could only provide about 30 percent of the world's total energy needs*."

If the US converted all of its soybean production into motor fuel, it would only provide about 87 % of the **Pentagon's** total oil needs

USA subsidises corn ethanol with $7 billion per year, to provide about 3 percent of America's oil needs

Using ALL Britain's arable land to grow biomass would replace less than half our gas consumption

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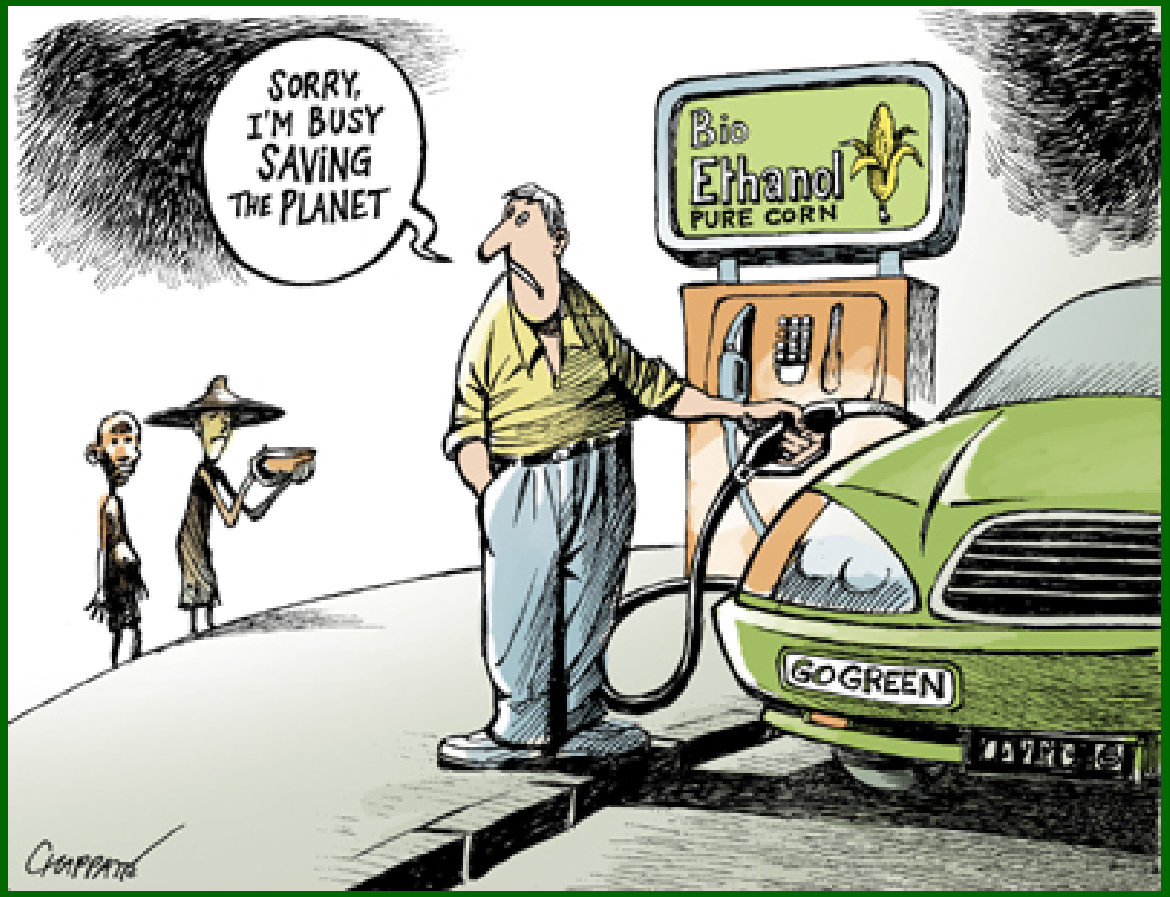

Food vs Fuel...Need vs Greed?