

Public Policy vs. Emissions Facts.

Initial Evaluation & Comment on the UK Government June 2019 Statement on Emissions & Climate Change.

*The Full White Paper is available on the GCR Website:
<https://greencarbonrecovery.com/>*

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Press Release:

<https://www.gov.uk/government/news/pm-theresa-may-we-will-end-uk-contribution-to-climate-change-by-2050>



PM Theresa May: We will end UK contribution to climate change by 2050.

Legislation laid today puts the UK on the path to become the first major economy to set net zero emissions target in law. - The statutory instrument to implement this will be laid in Parliament today, Wednesday 12 June. This will amend the Climate Change Act 2008.

✓ On face value, this looks positive & responsible - Kudos for UK Global leadership !
(Is this Therese May's lasting Legacy ?)

But unfortunately we are dealing with Politicians -

✗ What traditionally lies behind Environmentalism is a series of sub-agendas that range from the unnecessary to the unacceptable.
- ref. <https://www.bbc.co.uk/news/newsbeat-48616224>

Some of what is proposed in the UK:
The UK Gov. Committee on Climate Change (CCC)

- 1) Investing in cleaner Energy sources.
- 2) Planting more Trees.
- 3) Eat less meat. *(reducing animal flatulence - This means eating a vegetarian diet for both you & your pets).*
- 4) Turn the Heating down. *(to cut down the amount of Fossil fuel based energy we use - & more personal sacrifice).*
- 5) Fly less. *(Planes are big polluters, but what is the Aviation share of emissions ? - is this a sacrifice we have to make ?)*
- 6) Cut down on Waste. *(Has to be done at both Individual & Enterprise level).*
- 7) Installing Poo analyzers in our Loos. *(??)*

The significance of the UK decision should not be under-stated.

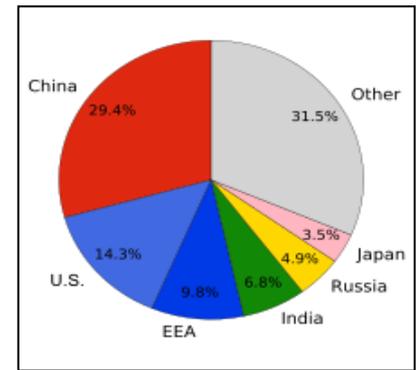
Although the UK is low on the list of polluting nations, & Emissions are somewhat insignificant in the Global context - a tone for future engagement on Environmental issues has been set:

..... It focuses heavily on the individual & our personal behaviour

- Do everything you can;
- Do what you can & when you can.

My other observation & concern is that these more detailed personal measures will unnecessarily detract from the actual brilliance of the UK decision:

- Green Politics can no longer be the play thing of Left Wing agendas.
- Environmentalism has gained maturity as an apolitical issue simply requiring Policy & Action.
- We have a date to work with - 2050.
- We know the context - Emissions !



Is it time we Re-framed the Task.

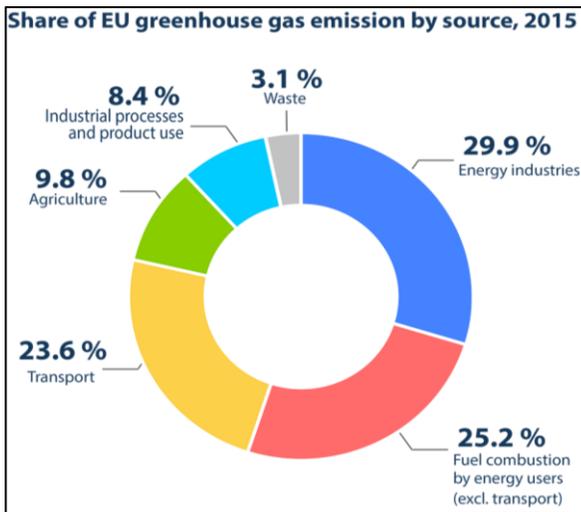
- Q. Climate Change Science is still disputed; but does that matter ? A. NO !
- The world is a pig-sty with Plastics & Litter of all descriptions (*including Emissions*) - Littering is against the law almost everywhere - so let's just enforce the law & clean up our patch - starting with EMISSIONS.
- Sustainability is a FACT - We must move away from retrograde thinking based on the false economies of Economic Rationalism -
(*eg. In the US in 1908 the average wage was \$450 - A good Horse was \$100 - a T Model Ford was around \$850 - 2 years wages by 1925 the wages were \$3,300 - the T Model was cheaper at a mere \$300 - The Horse was the still \$100, but who cared*).
- The price of progress has to be paid !
- So why not re-frame the tasking fully commit to Sustainability - instead of the jaded politics & still disputed science of Climate Change.

In doing so, the UK keeps itself aligned to its own Sustainability mantra from 2011:

"Enabling the Transition to a Green Economy" (*executed under the Cameron Government*)

Emissions Sources EU / UK & US:

From the following graphs, it can be seen that Power Generation & Transportation are the largest emitters of CO₂ & the obvious targets for Emissions reform.



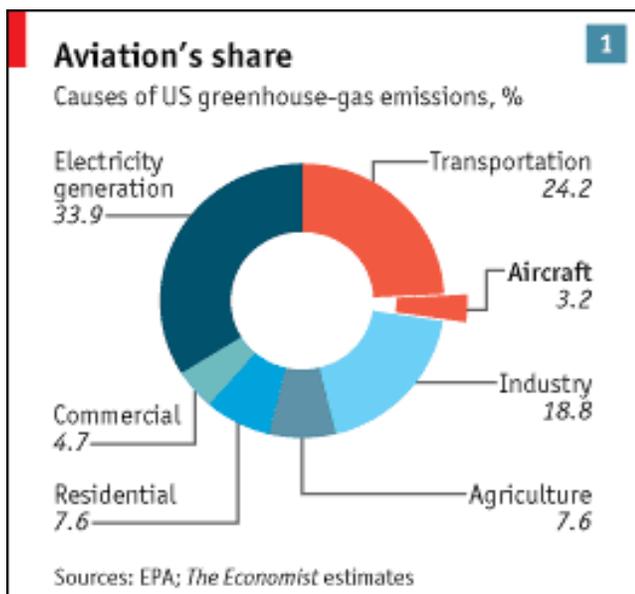
EU Emissions Profile

- Red* - includes Domestic & Commercial Emissions
- Yellow* - includes Air Travel (domestic & international)
- Green* - includes Production & Animals
(Agriculture is actually a low ticket emissions item, Animal Flatulence even smaller)

Table 1: UK annual greenhouse gas emissions, 1990-2018, headline results

	1990	1995	2000	2005	2010	2015	2017	2018 (p)	
Energy supply	242.1	210.3	204.0	219.1	197.3	137.6	106.0	98.3	21.9 %
<i>from power stations</i>	203.0	163.0	158.7	173.1	157.3	104.1	72.4	65.2	14.5 %
<i>other Energy supply</i>	39.1	47.3	45.3	46.0	40.0	33.4	33.5	33.1	7.4 %
Business	111.9	108.9	108.7	96.9	78.2	69.5	66.1	65.9	2.5 %
Transport	125.4	126.8	131.0	134.3	123.4	122.2	124.6	121.4	27 %
Public	13.4	13.2	12.1	11.1	9.4	7.9	7.8	8.1	1.8 %
Residential	78.3	79.6	85.6	82.5	84.5	64.5	64.1	65.9	2.5 %
Agriculture	6.5	6.5	5.5	6.1	5.4	5.5	5.6	5.6	1.2 %
Industrial process	19.4	17.7	16.9	16.3	10.6	12.1	10.2	10.0	2.2 %
Waste management	1.3	1.0	0.5	0.4	0.3	0.2	0.3	0.3	0.2 %
LULUCF	-2.0	-3.9	-6.0	-8.9	-10.7	-11.2	-11.3	-11.3	-2.5 %
Total CO₂	596.3	560.1	558.3	557.9	498.3	408.3	373.2	364.1	81.2 %
Other greenhouse gases	198.0	185.4	149.2	125.8	102.5	89.6	87.0	84.4	18.8 %
Total greenhouse gases	794.4	745.6	707.5	683.7	600.9	498.0	460.2	448.5	100 %

UK Emissions Profile



US Emissions Profile

- Pls note:*
 Aviation share of Transport (another low ticket emissions item easily catered for with Carbon off-sets)

So what can be Done ?

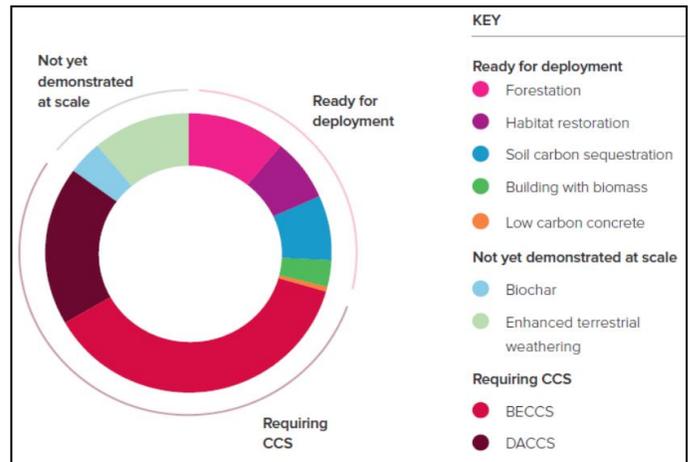
The GCR Technologies.

- GCR has Emissions Scrubbing & CO2 Capture technology.
- The GCR technologies are CCU (Carbon Utilization) - We use the Carbon resource instead of avoiding it and trying to hide it (Carbon Sequestration).
- GCR fields the very latest Synthetic Fuels technologies to recycle Carbon Emissions as fuel.
- All GCR Technologies make profit - They are an asset, not a cost.
- GCR Techs are true ZERO Emissions & ZERO Waste solutions.

The current approach to Emissions in the UK.

From the pie chart (*right*) it can be seen what the UK Gov. is considering as its long term direction for solving emissions - It's all about Sequestration.

- Undemonstrated Blue-sky technologies like DACCS (Direct Air Sequestration).
- Carbon Off-setting:
 - Planting Trees & Conservation;
 - Using Bio-mass as a fuel & passing it off as a renewable resource & BECCS (Bio-energy sequestration).
- I can only presume that the lack of direct confrontation with solving Emissions is the result of long held and out-dated perceptions (Myths) that viable emissions Techs don't exist.



Combining the 2.

The GCR vision for solving Emissions has always been simple:

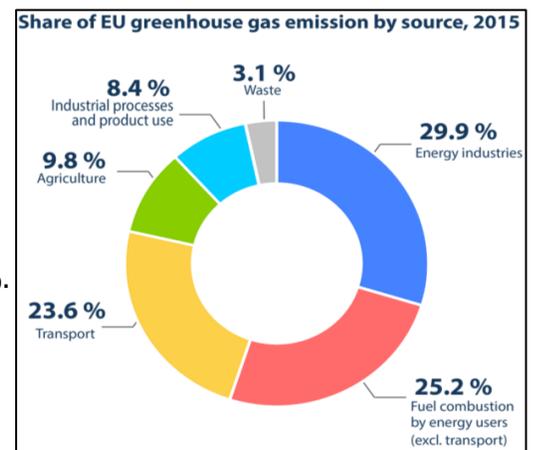
- Society must turn over to a full Electric future, just as they currently do in Scandinavia.

In the case of the all Electric EU: (ref. graph at right)

- Electric Transportation removes 23% of emissions.
- Electric Households, Commerce & Business removes 25%.
- Electrified Heavy Industry - another 8%.
- By solving Power Generation Emissions - another 29%.

TOTAL Emissions Savings 85%

Add to that the current Off-setting - & Carbon Negativity does not seem so difficult after all *.



* But there is a catch! - Going fully electric may require up to 50% more Electricity production Unless Emissions from Power generation can be solved directly & not by off-setting alone - the logistics for creating the necessary Power Off-sets will be too onerous As with the T Model FORD - Direct Treatment of Emissions may then be the price we pay for Progress.

Implications of the all Electric Future:

(with viable direct Emissions Tech.)

- Conventional Power Generation can still be used & be EMISSIONS FREE during the transition to the Green Economy. *(except Nuclear, which would not be required).*
- All the Electricity we want can be available to kick-start the Green Economy as we embark on the FULLY ELECTRIC Society
- This is envisaged as an interim measure until by 2050, or until, the next big innovation in power comes along *(eg. Zero Point)*

Test Case - DRAX

As GCR is in the business of solving Emissions - we have always been curious as to just what could be done with DRAX as a test case.

- DRAX Power Station in Yorkshire is one of UK's biggest Emissions Polluters - DRAX belches out 23,800,000 tonnes of CO₂ a year - but it doesn't as it's Bio-mass and plants Trees for Off-sets, so its net contribution to emissions is only 4.3 million tonnes per year.
- DRAX imports 7,000,000 tonnes of Bio-mass each year from Louisiana, & rated at 3,900 mw, it generates around 20 Terra-watt hours of Electricity each year - 8% of UK demand.
- DRAX already has some conventional Emissions Scrubbing - Limestone for SO_x & other measures for NO_x. - But Particulates & NO_x are still too high.

Obviously this is far from ideal - even though on paper it is all in compliance.

Suggested Solutions:

- GCR emissions Scrubbing Tech can be retro-fitted to their existing measures & would produce ZERO Emissions & Particulates - And capture the 23,000,000 tonnes of CO₂.
- With GCR Syn-fuels Tech - 23M tonnes of CO₂ would make c. 17.25 Billion Litres of Methanol. (equivalent to 37.5% of UK's yearly Fuel requirement).
eg. 17,250,000,000 L = 297,000 bbls/day - (the same product output as a large oil refinery)
- Estimated Revenue \$6 Bn /yr (£ 4.74 Bn).
- Alternatively GCR could make Methane out of the CO₂ to fuel DRAX instead of wood chips - in doing so the CO₂ is continually reclaimed and reconstituted into more fuel trapping Carbon in the Fuel Cycle (CCU)
(On mass balance - 92% of fuel can be recovered from Emissions - wood chip imports need only make up the 8% short-fall in fuel supply).

Swings & Round-a-bouts:

- GCR can do the same with Gas Turbines & other Conventional Power stations - Even coal fired ones, once the Coal gasification is installed.
- YES folks ! In spite of what you've been told - COAL can be good (Clean Coal is allowed under the Paris Accord) Coal can be as Green as you want it to be & COAL (gasified) is actually cleaner than the Bio-mass as it produces far less CO₂.
- The Trade-offs

 - Coal can be cleaner & we have Coal in the UK we could use - but there are no natural Carbon Off-sets.
 - Bio-mass is dirtier, but has natural Carbon Off-sets But then again, the more CO₂ we can get, the better off we are in terms of Fossil Fuel dependence & stopping new Carbon coming into the Environment.

But there is a much bigger picture we should not lose sight of.

It is easy to be side-tracked at this point & focus only on Human activity, when there is a bigger picture to consider - Macro CO₂ & Methane.

- I would suggest that LITTER (*Plastics*) is at least an equal issue to Emissions. But let's be myopic (*or is that dedicated single-mindedness*) & just focus on the promulgated task of Emissions.
- The fuss with Emissions is Greenhouse Gas (GHG) that traps heat in the atmosphere and warms the Planet. (*As opposed to just being a form of Litter*).
 - (Pre-industrial Revolution CO₂ was between 180 - 280 ppm depending on the Methane levels due to Glaciations - we recently just reached 400 ppm & as we have not had an Ice-age, or a really bad Volcanic activity recently we presume this to be man-made CO₂ Emissions).
- Methane is the Elephant-in-the-room here - rather than the CO₂.
- Methane traps 84 times more heat & has a much greater effect on Global Warming.
- Methane is released from the melting ice-caps, but more seriously, from the Permafrost Tundra regions, which are much greater in area - The big fuss here is not so much melting ice-caps due to the warming, but melting Tundra accelerating things. This in turn promotes the fear of sea-level rise & catastrophic environmental damage. - (*typified by that shameful pic of Al Gore's Polar Bear stranded on a melting piece of sheet ice at the time of the Copenhagen Summit*).
- This needs to be addressed as a separate & pressing issue & by artificial means - otherwise it may soon be out of control. - But what we are actually talking about here is prudent RISK management of potential Global Warming threats.
- As Global warming is already happening - it will take some time to slow & stop the current trends & their effects - That will require a global consensus of action - both on Human Activity (Litter & Emissions), but also on the Arctic Methane.
- There is a solution to this - **THE OXYGEN AIRLIFT** - a separate paper of this is available online on the GCR Website <https://greencarbonrecovery.com/>

- This will be a man made Endeavour that will mimic an occurrence that has happened on Earth twice previously.
 1. Once - when there was an abundance of life in the oceans (a veritable soup of Plankton & Algae), which caused an excess of Oxygen, which then migrated into the upper atmosphere dissipating the Methane & GHG cooling the planet & changing life below.
 2. Once on land - when there was an abundance of plant life that did the same thing.
 - Most of the precipitated Carbonate compounds formed by the Oxygen in the upper atmosphere & the organic material from the dead organisms formed the sedimentary layers we currently tap into for our Fossil Fuels.
 - Much of what the Earth took millions of years to sequester naturally has been dug up & re-introducing into the atmosphere since the Industrial revolution.
 - The Theory here is to airlift Oxygen & Hydroxyl (OH) compounds into the lower Stratosphere to dissipate Methane & CO₂ - which will undergo a series of chemical changes and breakdown and precipitate back to Earth as neutral Carbonates - the end result will be that the heat trapped by these gasses will no longer be possible thus cooling the Earth.
 - It has been estimated that 6 million tonnes of Oxygen has to be airlifted initially - the cost estimate is \$18 Bn - the time frame required could be inside 10 years so it's very possible to do.
 - If we don't do this - then the areas that will flood from rising sea-levels are the G20 nations - so it's in their interest. - *(eg. all East Coast USA, Northern Europe, East UK & London, most of Northern & Coastal China)**
- * *Oh! & they didn't mention to you that with current Global warming trends - it will take 5,000 years to melt all the ice. (net sea-level rise 73m) - but we did tell you that Environmentism was a corrupted political agenda.*

CONCLUSION:

If we are serious about saving the Environment we need to do 2 things:

- Embrace Sustainability & the Green Economy
- Do the Oxygen Airlift - *(just as a precaution)*

The Reality Check:

- We can never move completely away from Fossil Fuels. Some production of them will always be required *(eg. Chemicals, Plastics, Pharmaceuticals, Shipping, Aviation, Some Heavy Transport & Agriculture)*
- Their production & use can be made safe & their impact made negligible.
- We need to realize that Zero emissions is not practical - low levels of emissions have to be tolerated & countered with Off-sets.
- Our life-styles will have to change, but the sacrifice currently mooted is unnecessary politicking.
 - We will still be able to fly.
 - We can still eat meat - just less beef perhaps.
 - We can still have our Motor Sport & other similar hobbies & pursuits.

All of these minor activities can be catered for with Carbon Off-sets as long as direct Emissions are dealt with - & they will be centralized into (1) prime area - Power Generation.

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