



- The Climate Crisis is Manmade, getting worse and **urgent**.
- The Technology and Budget **now exist** to achieve UK Net Zero as part of Global Net Zero.
- UK Net Zero is the **greatest opportunity** for 70+ years for UK Growth, but it has 'stalled'.
- **This is the solution**.....

# COP 28 UAE

Produced for :  
Lord David Howell of :



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Achieving UK Net Zero as part of Global Net Zero is now achievable and affordable, as it is in most Developed Countries.

However, the Climate Crisis and Net Zero have been 'hijacked' by many organisations and politicians who have tried to confuse the Public with Mis-information, Fake news, Red-herrings, Fake Data, Delaying tactics, Scare tactics etc.

The Authors of this document, would like to ensure it is 100% accurate, so as a 'fact-check guarantee', if you find any of the above in this document, they will pay £100 to a charity of your choice.

Please use the e-mail address on the front cover to report any.

# Climate Crisis Summary (v5.0 : September 2024)

This is an update on the Global Climate Crisis as of September 2024, which describes the problem, but more importantly, the available solutions.

Most of the research for this document comes from Imperial College London, who are world leaders on the climate crisis, who we have appointed for various studies.

It has been produced for Lord David Howell and his House of Lords Colleagues who are interested in Climate Crisis Reversal and Net Zero. Lord Howell was previously the UK's Energy Minister, so is very familiar with the UK's Energy Sector and particularly its Nuclear Industry.

**The good news is that the Climate Crisis is still reversible, but the bad news is that Mankind is doing 'all but nothing' to reverse it. However, the solutions shown below are all still possible, so it's not too late yet, but soon will be.**

## 1. **Executive Summary**

This document can be summarised as follows.

- a) The Climate Crisis has been Scientifically proven to be Man-made, Urgent and getting worse, but some senior global figures such as Donald Trump and more recently Rishi Sunak, have tried to persuade the global population that the above is not true.
- b) The Climate Crisis is simple Scientific fact, which is that Mankind has released an estimated 2 Trillion (2,000,000,000,000) Tons (see image below) of Green House Gases (GHGs) into the near earth atmosphere in the last 150 years, most of which is Carbon Dioxide (CO<sub>2</sub>) which stays in the atmosphere forever and is currently at 85% saturation.



- c) Despite 50 years of global co-operation between more than 90% of the World's Governments and 28 global conferences, most recently COP 28 in Dubai, the GHGs levels continue to increase **every year.**

- d) In 2016, 90% of the World's Leaders agreed that the 'danger limit' was a 1.5 degrees Celsius global temperature rise which has now been exceeded. In 2023, some parts of the world reached 2.0 degrees above the long term average.
- e) The current widely accepted prediction is that a 2.0 degree increase will become the norm with a few years, as the Earth heads towards 3 degrees increase or more, and the global devastation that will follow.
- f) The technology now exists in all Developed Countries, who produce most of the global pollution, to easily reduce their GHG emissions by 40% to 60%, which would cause a global reversal of emissions and slow the dangerous temperature rise, but most countries, including the UK, have done 'all but nothing' to achieve that.
- g) 'All but nothing' is measured by Government investment, which in the UK would be measured as 0.05% of GDP, which is 1/20<sup>th</sup> of what's needed, as in reality 1% of GDP would be required.
- h) Before the most recent election, the UK Government falsely claimed that a 1% of GDP investment in highly efficient 'Green technology' such as more Wind, more Solar, more Nuclear, Green Hydrogen, Carbon Capture and many others, would Bankrupt the UK economy.
- i) Rather than Bankrupt the UK economy, a Government investment of 1% of GDP would be matched and exceeded by the Private Sector, which would cause a GDP boost estimated at 3%, whilst creating many new industries and exports for the UK, plus create 10's of thousands of new jobs.
- j) The previous UK Government up to July 2024 failed in its **FIRST DUTY** to protect the British Public, even if the Public don't agree with or understand, or can't afford to understand the Climate Crisis. They 'weaponised' the Climate Crisis by falsely claiming that any person who wants Climate Crisis Reversal is a 'Zealot' to be ignored.
- k) In summary, the Climate Crisis is already here, its urgent and getting worse each year, and a small investment by UK Government would contribute to UK Net Zero and crucially to Global Net Zero, and would be Self-funding for any developed country who attempts it.
- l) If the UK, Europe, USA, Canada, Australia, Japan and even China made small moves to deploy existing technology to reduce GHG emissions, it would have a **GLOBAL** benefit in less than a decade, and then the less developed

countries could be assisted to start their own reductions, whilst continuing with their own Industrial Revolutions.

**m) The Global Climate Crisis will be highly destructive in all parts of the world, but it is not yet too late to reverse it, but soon will be.**

**(End of Executive Summary)**

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## **2. Is the climate crisis real?**

Thousands of Scientists worldwide and most humans, who have taken the time to understand it, now accept that the climate crisis is man made, but some people do not. A classic example is Donald Trump who 'laughs it off' and intends to enormously expand fossil fuel drilling and usage if he becomes President of the USA again.

The UK Government accepts it is real, but before the election in July 2024 turned the climate crisis into a 'culture war' as they u-turned on most Green Policies and Technologies which could have started the UK's Net Zero progress, whilst simultaneously and falsely claiming the UK is a "world leader" in it.

## **3. What causes the Climate Crisis?**

The Climate Crisis is mostly caused by mankind burning enormous quantities of fossil fuels for the last 150+ years. The waste gases, which are known as Greenhouse Gasses (GHGs) enter the near-earth atmosphere and stay there.

The worst offender is Carbon Dioxide (CO<sub>2</sub>) which stays in the atmosphere forever and is currently at 85% saturation. When it reaches 100% saturation, which currently will be in the next 10 to 20 years, that will become what's known as a 'Tipping Point' whereby it will become impossible to reverse.

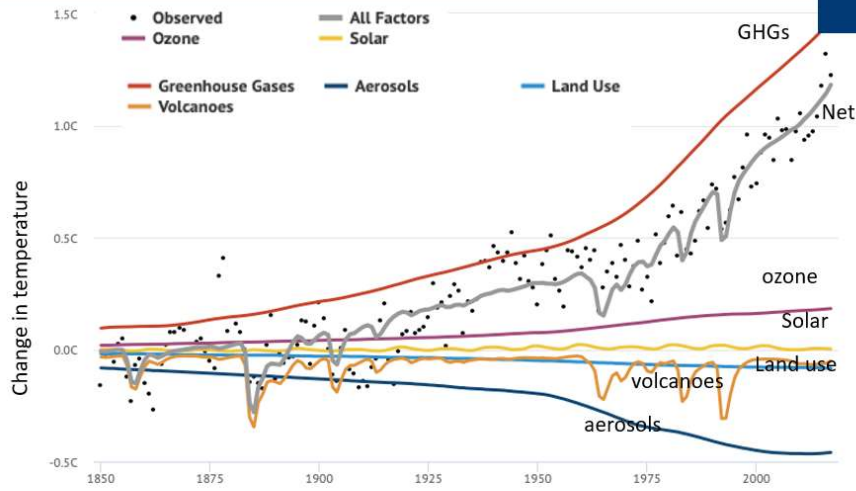
It should be noted that 100% CO<sub>2</sub> saturation is actually only 0.05% of the atmosphere, but that's the 'Tipping Point' at which global temperature rise will become irreversible.

Other GHGs include Methane, partly from manufacturing, farmed animals, and natural sources such as melting permafrost caused by global warming, but it does eventually dissolve in the atmosphere. These are called GHGs because they allow the Sun's heat through the atmosphere, but then some of it gets trapped by the GHGs, causing the planetary temperature to continuously rise, hence the planet warms up and retains heat like a greenhouse does.

Hundreds of world-wide studies confirm the nature and urgency of the Climate Crisis, including extensive research by Imperial College London, as shown in their graph below.

# How do we know it's our fault? Human vs natural factors (1850-2017)

Imperial College  
London



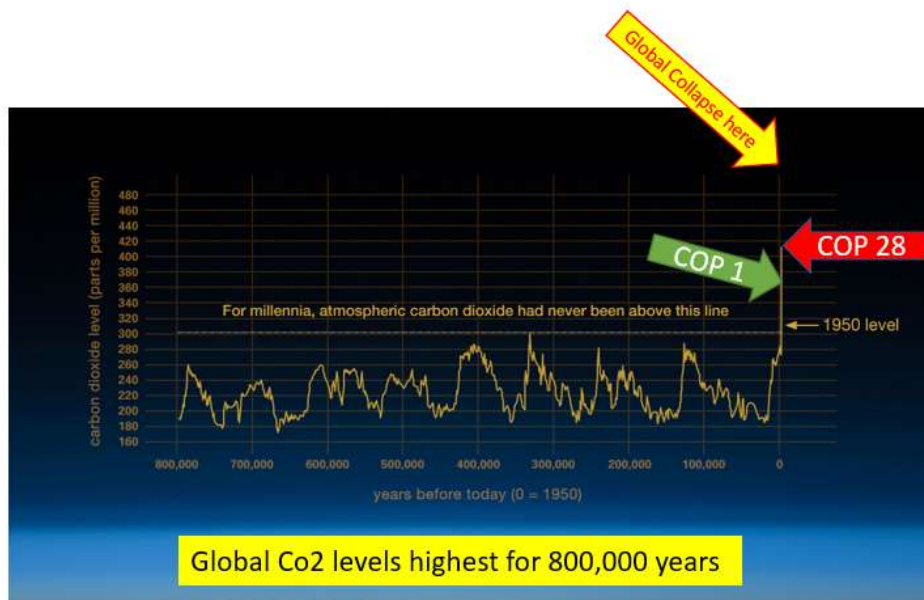
Global mean surface temperatures from Berkeley Earth (black dots) and modeled influence of different radiative forcings (colored lines), as well as the combination of all forcings (grey line) for the period from 1850 to 2017. See methods at the end of the article for details. Chart by Carbon Brief using Highcharts.

<https://www.carbonbrief.org>

## 4. How bad is the Climate Crisis?

At the COP26 Climate Conference in Glasgow in November 2021, Sir David Attenborough, one of the world's greatest Authorities on Global Warming presented the graph below, which shows that CO<sub>2</sub> is at the highest level in the atmosphere for 800,000 years.

He said that “**nothing matters** unless mankind can reduce the CO<sub>2</sub> below 420 parts per million”, but after 50 years of discussing it and 28 COP conferences, the CO<sub>2</sub> concentration continues to increase every year, which currently makes the Climate Crisis irreversible.

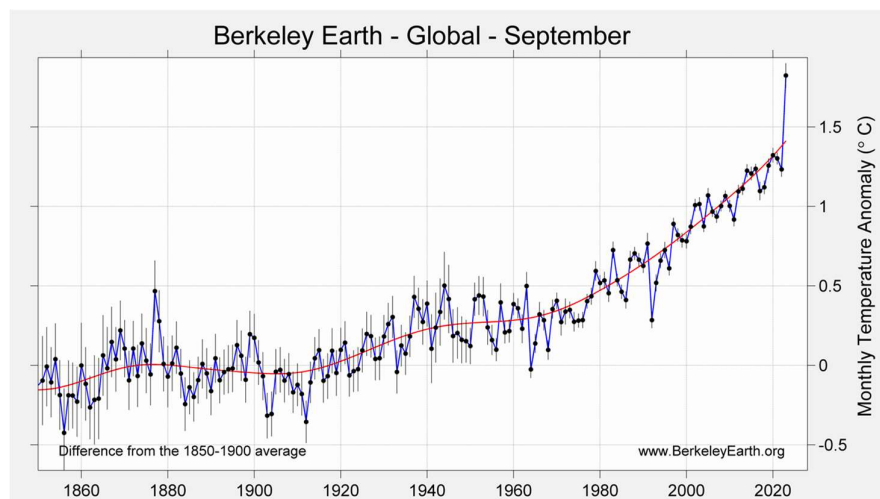


## 5. **How does the Climate Crisis manifest itself?**

The main problem is that the GHGs trap the Sun's heat in the atmosphere, causing Earth's average temperature to continuously rise. At the Paris COP in 2016, 90% of the countries of the world agreed to do "everything possible" to limit this increase to 1.5 degrees Celsius ( $^{\circ}\text{C}$ ), but in reality, have done 'all but nothing', other than talk about it.

'All but nothing' is measured by global expenditure on trying to reverse the climate crisis, which averages 0.05% of the annual GDP of all the developed countries of the world, versus the 1% which is necessary. It should be noted that 0.05% is around 1/20<sup>th</sup> of what's needed, and it's easy to imagine what the results would be if the NHS or UK Defences were run on budgets of 1/20<sup>th</sup> of what they need to be.

As a result, the global temperature frequently exceeds 1.5( $^{\circ}\text{C}$ ), and in 2023 it exceeded 2.0 $^{\circ}\text{C}$  above average for a few days, which will soon become the norm.



## 6. **What happens if the planet keeps heating up?**

If the average temperature continues to rise above 1.5 $^{\circ}\text{C}$  as it will inevitably will on the present course, there will be ever increasing negative affects on Earth's ability to support human life. Many of obvious problems are already visible, such as ocean level rise, ocean chemical imbalance, extreme rain, extreme drought, extreme winds, wild fires (including in the UK in 2023), crop failure, land loss etc.

However, some of the worst effects are less obvious and less well known, such as the slowing down of ocean currents due to man-made warming of the oceans and chemical imbalance in their salt concentrations. This includes the Gulf Stream which is an enormous warm water current which has flowed for thousands of years from South America towards the North Pole.

Last time it slowed down for natural reasons around 100,000 years ago, it caused an ice age, which extinguished most of the life in the northern hemisphere.

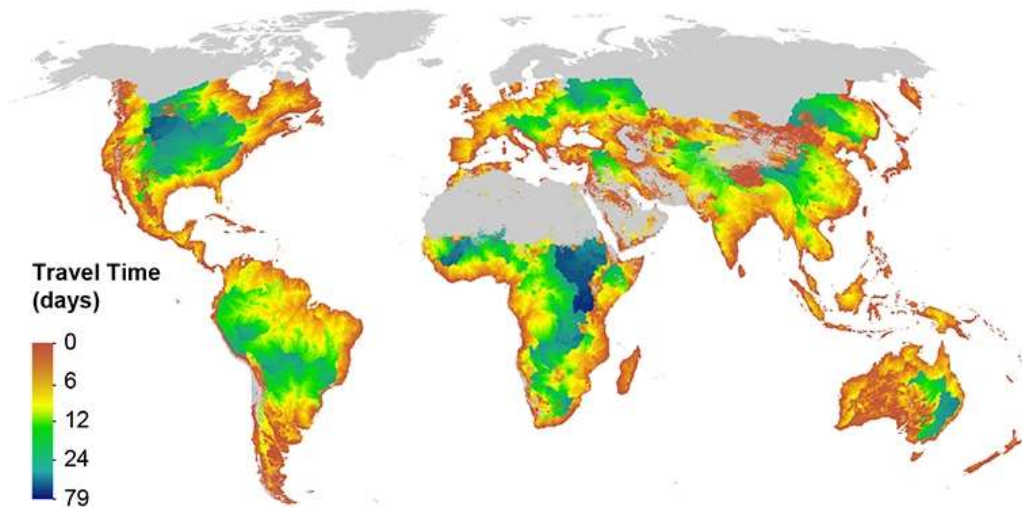


*Gulfstream is slowing down due to man-made chemical imbalance*

**7. Why will ocean levels continue to rise?**

One of the worst effects of the climate crisis is sea level rise, which is actually ocean level rise, as all the oceans of the world are connected to each other. As a result of the global temperature stability up to around 200 years ago, around 3% of Earth’s water is ‘locked up’ as Ice, Snow and Permafrost.

If this all melted, ocean levels would eventually rise by 60 metres, which is the equivalent of a 15 storey modern office building. Whilst a total ice meltdown might take hundreds of years, the first 1 to 5 metres of rise would ‘flood’ thousands of islands worldwide, and would partially flood hundreds of coastal towns and cities, including London, New York, Los Angeles and many others, as outlined in red on the map below, produced by NASA.

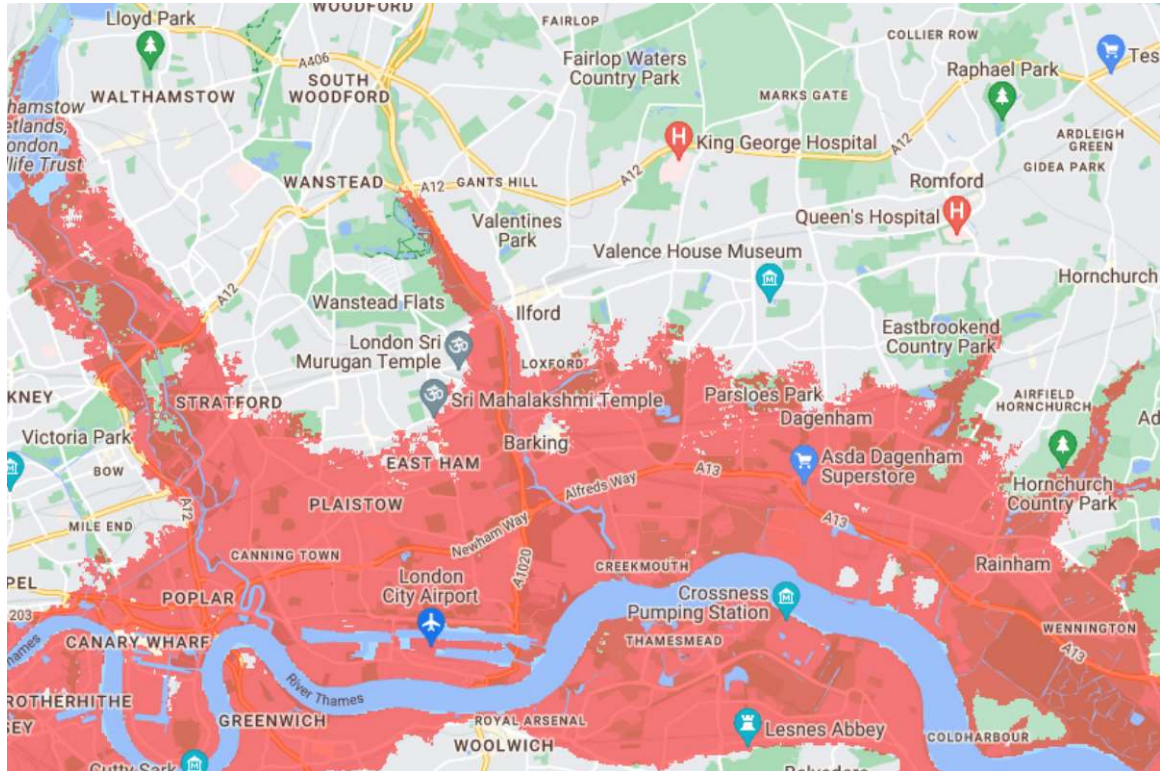


Whilst a one metre flood may sound ‘not that serious’, in London for example, it would destroy the central London underground train system, destroy 50%+ of the electrical grid and sewers, which would effectively make the city ‘un-liveable’.

As well as melting ice, ocean level rise is also caused by expansion of the enormous volumes of water as the oceans heat up as a result of global warming.



Many people believe that flooding of costal towns and cities is just for Hollywood movies, but for example, in London at high tide in the winter, the River Thames flows ‘violently’ just 2 feet below street level and it is predicted it will be flooding Central London on a regular basis in the next 10 to 20 years, as shown on a new flood map which is widely being accepted by London Planners as an unstoppable reality as shown below.



*Red area shows predicted regular flooding in Central London in the next 10 to 20 years*

**8. How much do humans affect the climate crisis?**

Although some humans try to reduce their individual production of GHGs, via recycling, less flying, less consumerism, change of diet, this has very little effect and at least 70% of humans don't or can't even try.

Some Politicians, and Global celebrities and thousands of Scientists, plus many public protests, have tried to pressurise various Governments around the world, and while that creates headlines, it has had very little effect on policy, action, and most importantly, **no effect** on the ever-increasing CO<sub>2</sub> concentration in the atmosphere.

The problem is that an 'average' human in developed countries produces between 5 and 15 tonnes of CO<sub>2</sub> per year, which is 'invisible' and hard to visualise. One tonne of CO<sub>2</sub> is visualised below, and in the UK and Europe the average person (baby, child or adult) either directly or indirectly cause 5 tonnes per person per year of CO<sub>2</sub> to be released into the atmosphere.

An example of direct release might be home heating, versus and indirect example might be electricity, food or manufacturing produced elsewhere on the planet for them.

However, in the USA, for a similar lifestyle to the UK and Europe, the average is 15 tonnes per person per year, and in China it's 7 tonnes per person per year, which is increased due to large scale manufacturing and related transportation they undertake for the rest of the world.



**Every day,** Humans cause or directly emit 151 Million Tonnes of Carbon in to the Atmosphere.

This equates to 105,000 of these **per minute.**

That equates to **55 Billion** of these per year.

Global increases of GHGs over the last 34 years are shown below.

|   | 2022 vs 1990 | 2022 vs 2005 | 2022 vs 2021 |
|---|--------------|--------------|--------------|
|  Power Industry                      | ↗ +92%       | ↗ +34%       | → +1%        |
|  Industrial Combustion and Processes | ↗ +95%       | ↗ +43%       | → 0%         |
|  Buildings                           | → 0%         | → +3%        | → 0%         |
|  Transport                           | ↗ +72%       | ↗ +22%       | → +5%        |
|  Fuel Exploitation                   | ↗ +56%       | ↗ +22%       | → +3%        |
|  Agriculture                         | ↗ +21%       | ↗ +15%       | → +1%        |
|  Waste                               | ↗ +58%       | ↗ +32%       | → +2%        |
|  All sectors                         | ↗ +62%       | ↗ +27%       | → +1%        |

**9. Is it too late to reverse the climate crisis?**

It's not too late to reverse the climate crisis, but it soon will be. For the 'world' to start reducing its CO<sub>2</sub> below 420 parts per million, would be a slow but achievable task, starting with the developed countries of the world, who are 70%+ of the GHG polluters, who could then eventually help the undeveloped countries.

Whilst there are many human activities which produce CO<sub>2</sub> some are easier than others to tackle. Some of the difficult ones are food production, farming, aviation, concrete and steel manufacture, etc, but some of the 'easier' ones to tackle are electricity production, home heating and personal vehicle use.

Tackling these 'easier' targets would generally cause GDP growth in most developed countries, so would be a 'win / win' for any country undertaking them, which is contrary to the 'can't afford it' picture painted by many western governments including the UK and USA.

It should be noted that the USA recently passed its Inflation Reduction Act (IRA) which is intended to spend \$35 billion a year on the Green Transition, but new technology roll-out is very slow, and would be reversed if Donald Trump became President again.

**10. What is Net Zero and how can it be achieved in the UK?**

Net Zero is a target set by all developed countries, to eventually reduce their individual GHG production by around 80% (approx.) through technology, and the remaining 20% (approx.) via natural means such as more efficient farming, planting more trees, preserving bio-diversity etc.

Whilst it would be ideal if countries helped each other, the global reality of 2024 is that just complicates everything and slows everyone down. The good news is that the technology now exists for developed countries to make big progress towards their individual Net Zero targets, and in the case of the UK, we don't have to ask 'permission' from any other country since Brexit.

**11. Is there any point to the UK achieving Net Zero alone?**

Since the UK Government turned 'anti Net Zero' in 2023, there is a great deal of mis-information in circulation, including the latest false theory that there is no point to the UK tackling Net Zero alone, which is **100% incorrect**.

This is because most of Europe, North America, Australia, Canada, Japan and even China are all slowly, but too slowly, starting their Net Zero transitions, because in most cases it will create a GDP increase and deliver many other benefits. Even if the combined effect is just a 1% decrease in GHGs per year,

that would be around a 25% total reduction by 2050, which is far better than the 15% increase expected, i.e. the world would be 40% better off by 2050.

Once the developed countries are making progress, that would be tackling 70% of the global problem, and then they could help the undeveloped countries, which would benefit both. However, by time the UK realises the rest of the developed world is making Net Zero progress, albeit it slowly, we would be at the 'back of the queue' for technology supply chains, expertise, resources etc.

## 12. **Can COP Conferences 'save the world'?**

After 50 years of global consensus, global conferences, global agreements and 28 COP global climate conferences, the CO<sub>2</sub> concentration in the atmosphere has continued to rise every year.

At COP 26 hosted by the UK in 2021, it seemed that the politicians had finally and miraculously understood the climate crisis problem and were about to apply enormous resources to tackle it.

They did not talk of spending £millions, or even £billions, but all talk was about spending £trillions, which actually could be applied to this problem, but has never been. For example, the world spends £2trillion (£2,000,000,000,000) every year on what it calls 'defence', but that is still only 2% of Global GDP. Even 5% of that would go a long way towards reversing global warming, but each country prefers to spend the money on the latest new 'shiny bombs and weapons'!

If you go on line and find the COP26 speeches of Boris Johnson as Prime Minister and Rishi Sunak as Chancellor at the time, you would believe we would have made great progress even in the two and a half years since then, but instead, in 2023 and 24, Rishi Sunak u-turned on most green policies and technology that could have made progress. He has also created a 'culture war' around climate change which tried to imply that if people want it solved, they are Zealots to be ignored. This is shameful behaviour which should be called out and remembered for generations to come, and everyone hopes Labour will do better.

COP27 in Egypt made no progress and at COP28 in Dubai in 2023, which was run and chaired by one of the world's largest fossil fuel companies, the delegates argued for days, and then sat up all night, and congratulated themselves in the morning, when they effectively agreed the following.

.....'That they, (90% of the world's Leaders) effectively agreed that all countries would do their best to reduce the use of fossil fuels over the next 26 years to 2050, **BUT** if they couldn't, it doesn't really matter if they miss that target, as all countries have missed all previous targets agreed at all the previous 27 COP Conferences!'

Needless to say, COP conferences are also attended by thousands of well-intentioned climate specialists, who genuinely try to represent the billions of people around the world that want global warming reversed, as its still possible, but the Politicians and the Fossil Fuel companies ensure that all commitments made by each country are vague and unenforceable.

### **13. How can the UK start its own Net Zero transition?**

As outlined above, there are many global challenges to achieving Net Zero, such as Farming, Aviation, Deforestation, Shipping, Steel and Concrete manufacture etc, but there are many large ‘domestic’ components which all developed countries can tackle alone.

The ‘lions share’ of this and the ‘must tackle list’ includes electricity production, domestic heating, and personal transportation, which is at least 50% of the problem. If we can’t tackle that 50% domestically, then the other 50% globally will be much more difficult and potentially pointless.

### **14. Tackling electricity production?**

The UK has already made good progress towards decarbonising our electricity production, not just for environmental reasons, but more because solar farms and off-shore wind farms are profitable, and as a result, the UK has the largest wind farms in the world.

However, whilst wind, solar and hydro now produce 45% of the UK’s annual electricity, that’s only 7% of our daily energy needs when compared to Gas, Oil, Coal and Bio-mass. Same applies to Nuclear, which is 8% of our annual electricity, but only 2% of the UK’s annual energy needs when compared to Gas, Oil, Coal and Bio-mass, as shown in the chart below.

That means that 9% of our daily energy is from clean sources such as Wind, Solar, Hydro and Nuclear, but 91% is from Gas, Oil, Coal, Biomass and from ‘dirty’ electricity made from those. That means that the UK has to replace 91% of its daily energy sources over the next 26 year, and even if half of that was achieved, it would be big progress towards UK Net Zero.

## UK Net Zero requires 91% of energy supply be changed to clean sources by 2050

| UK Energy SOURCE<br>(Used in homes, transport and industry) | Example of Use                         | UK Annual ENERGY<br>consumption<br>(in TW hours) | UK Annual ENERGY<br>consumption<br>(in KW hours) | KWh per year<br>per capita<br>(68 million) | % of total UK<br>Energy used per<br>year |
|---|--|--|--|--|--|
| UK 'CLEAN' Electricity consumption                          | Wind, Solar, Hydro, Nuclear            | 152  | 152,110,000,000                                  | 2,237                                      | 9.2%                                     |
| UK 'DIRTY' Electricity consumption                          | Gas, Coal, Oil, Bioenergy              | 135  | 134,890,000,000                                  | 1,984                                      | 8.2%                                     |
| UK BIOENERGY consumption                                    | Excluding Electricity generation       | 109  | 108,935,000,000                                  | 1,602                                      | 6.6%                                     |
| UK GAS consumption  | Excluding Electricity Generation       | 499  | 498,824,000,000                                  | 7,336                                      | 30.2%                                    |
| UK Coal consumption   | Excluding Electricity Generation       | 1  | 1,000,000,000                                    | 15   | 0.1%                                     |
| UK OIL Consumption  | Aviation fuel, Industrial, Farming etc | 333  | 332,546,000,000                                  | 4,890                                      | 20.1%                                    |
| UK OIL Consumption - DIESEL                                 | Transport                              | 280  | 280,000,000,000                                  | 4,118                                      | 17.0%                                    |
| UK OIL Consumption - PETROL                                 | Transport                              | 142  | 142,400,000,000                                  | 2,094                                      | 8.6%                                     |
|   |  | 1,651  | 1,651,000,000,000                                | 24,275                                     | 100%                                     |
|   |  |  | 1,651 TW hours                                   |  |  |

However, if the next 26 years to 2050, as part of its normal economic cycle, the UK could go 'all electric' in most of its 23 million homes and 'all electric' to replace most of the 36 million petrol and diesel vehicles, then gas, oil, coal, petrol and diesel usage would be enormously reduced, but the electrical consumption would be 6 times (600%) of what it is today.

A typical UK 'all electric' home on a cold day, when gas is not available for heating, hot water or cooking, and petrol or diesel is not available for personal transport, would consume 5 times the electricity it does today. That may sound unaffordable, but a much bigger annual electricity bill would be offset by no gas bill and no outlay for petrol or diesel.

The chart below, shows a 'typical' UK home on a cold day, consuming five times the amount of electricity in peak hours (6.4kw highlighted in green, versus 29.4kw highlighted in red), in peak hours which would occur at the same time all over the UK on cold days.

| Electrical Usage (3 Bedroom house WITH Gas and no Electric Car) | Time of day (Example of 20+ cold winters days in UK) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | Hours per day | kW load of each device | kW/hours per day | kW cost per hour | Daily cost |
|---|--|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------|------------------------|------------------|------------------|------------|
|   | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |               |                        |                  |                  |            |
| Vehicle on charge   |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 0             | 0                      | 0                | £0.39            | £0.00      |
| Washing Machine   |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1             | 2                      | 2                | £0.39            | £0.78      |
| Dryer   |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1             | 2                      | 2                | £0.39            | £0.78      |
| Dishwasher  |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1             | 2                      | 2                | £0.39            | £0.78      |
| Oven / Microwave / Hob  |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 0             | 0                      | 0                | £0.39            | £0.00      |
| Gas Central Heating   |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 0             | 0                      | 0                | £0.39            | £0.00      |
| Hot Water from Central Heating System                           |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 0             | 0                      | 0                | £0.39            | £0.00      |
| Hot Water Immersion (emergency only)                            |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 0             | 0                      | 0                | £0.39            | £0.00      |
| Background load e.g. Fridge/Freezer, PCs & TVs                  | 1  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 24            | 0.2                    | 4.8              | £0.39            | £1.87      |
| Lighting  |  |   |   |   |   | 1 | 1 | 1 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 10 | 0.2           | 2                      | £0.39            | £0.78            |            |
|   |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |               | 6.4                    | 12.8             |                  | £4.99      |

| Electrical Usage (3 Bedroom house WITHOUT Gas and WITH Electric Car) | Time of day (Example of 20+ cold winters days in UK) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     | Hours per day | kW load of each device | kW/hours per day | kW cost per hour | Daily cost |       |
|--|--|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|---------------|------------------------|------------------|------------------|------------|-------|
|  | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24  |               |                        |                  |                  |            |       |
| Vehicle on charge (twice a week, not daily)                          | 1  | 1 | 1 | 1 | 1 |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1   | 1             | 7                      | 7                | 49               | £0.39      | £5.46 |
| Washing Machine  | 1  | 1 | 1 | 1 | 1 |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1   | 2             | 2                      | 2                | £0.39            | £0.78      |       |
| Dryer  |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1   | 2             | 2                      | 2                | £0.39            | £0.78      |       |
| Dishwasher   |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 1   | 2             | 2                      | 2                | £0.39            | £0.78      |       |
| Oven / Microwave / Hob   |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 2   | 6             | 12                     | £0.39            | £4.68            |            |       |
| Air-source Heat Pump # 2 (one per 400 Sq Ft)                         |  |   |   |   |   |   | 1 | 1 |   |    |    | 1  |    |    |    |    |    |    |    |    |    |    | 1  | 1   | 4             | 3.5                    | 14               | £0.39            | £5.46      |       |
| Air-source Heat Pump # 1 (one per 400 Sq Ft)                         |  |   |   |   |   |   | 1 | 1 |   |    | 1  | 1  |    |    |    |    |    |    |    |    |    |    | 1  | 1   | 6             | 3.5                    | 21               | £0.39            | £8.19      |       |
| Hot Water Immersion  |  |   |   |   |   |   | 1 | 1 |   |    | 1  | 1  |    |    |    |    |    |    |    |    |    |    | 1  | 1   | 6             | 3                      | 18               | £0.39            | £7.02      |       |
| Background load e.g. Fridge/Freezer, PCs & TVs                       | 1  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 24  | 0.2           | 4.8                    | £0.39            | £1.87            |            |       |
| Lighting   |  |   |   |   |   | 1 | 1 | 1 |   |    |    |    |    |    |    |    |    |    |    |    |    |    | 10 | 0.2 | 2             | £0.39                  | £0.78            |                  |            |       |
|  |  |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     | 29.4          | 126.8                  |                  | £35.80           |            |       |

**15. How to make 600% more electricity than in 2023?**

In order for the UK to make any real independent progress towards its own Net Zero, we would need to go ‘all electric’ as far as possible over the next 26 years, in 23 million home and replace 36 million petrol and diesel vehicles, for which we would need to enormously increase our electricity production, but even if wind and solar was double, trebled or quadrupled from 2023 levels, it would leave an enormous electricity shortfall, especially when wind or sun are not at their maximums.

Therefore, the only answer for the UK and any other developed country to achieve progress towards Net Zero and Energy Security when wind and solar are not available, will be to enormously increase electricity production from **new style smaller Nuclear energy plants**. Without that, any real progress towards Net Zero would be impossible.

**16. Is Nuclear energy, dangerous, difficult and unpopular?**

Modern nuclear energy production is now more reliable and safer than ever before. Early nuclear plants built in the 50’s and 60’s did fail, but latest generation designs are safer and don’t have any single points of failure.

However, current nuclear plants can be the size of a small town, and nobody wants one built near them, so the UK would have to reuse all past and current nuclear sites for a new generation of ‘miniature’ nuclear generators, which are 10% the size of traditional nuclear plants. These are called Small Modular Reactors (SMRs) and are being developed by companies such as Rolls Royce,

Westinghouse, General Electric, Hitachi, China National and many others around the world. They are effectively re-developed versions of the Nuclear Reactor Plants fitted to most Submarines, which have been safely operating around the world for 40+ years.

In the case of Rolls Royce, the SMRs which cost around £2billion each, would power around 500,000 homes, would be factory built and delivered to sites which are just the size of a few football pitches. That compared to the old style nuclear plants still being built in the UK, such as Hinkley Point C, which is the size of a small town, built by non UK companies, which will power 3 million homes, but at a cost of £30+billion and 10 years behind schedule.

SMRs would effectively cost £4billion per Gigawatt, versus Hinkley Point C which will cost £10billion per Gigawatt, so effectively **250% more expensive than SMRs.**

SMRs would not be an economic cost to the nation, as each would produce £1.2billion of electricity at 2023 domestic rates, so each would be a highly profitably British investment, not a cost to the UK tax-payers.



*Rolls Royce SMRs can power 500,000 homes, but at just 30% the construction cost of traditional nuclear technology.*



*Hinkley Point C being built in the UK by non UK companies, the size of a small town, 100% over budget and 10 years delayed. 250% more expensive than latest nuclear SMR technology.*

**17. Where could new Small Nuclear be located?**

There are 6 large scale secure Nuclear sites for Electricity Generation in the UK, which account for 15% of UK Electricity consumption, but that is only 3% of the UK's daily energy needs, when compared to Gas, Oil, Bio-mass and Coal.

**Nuclear power stations in the UK**

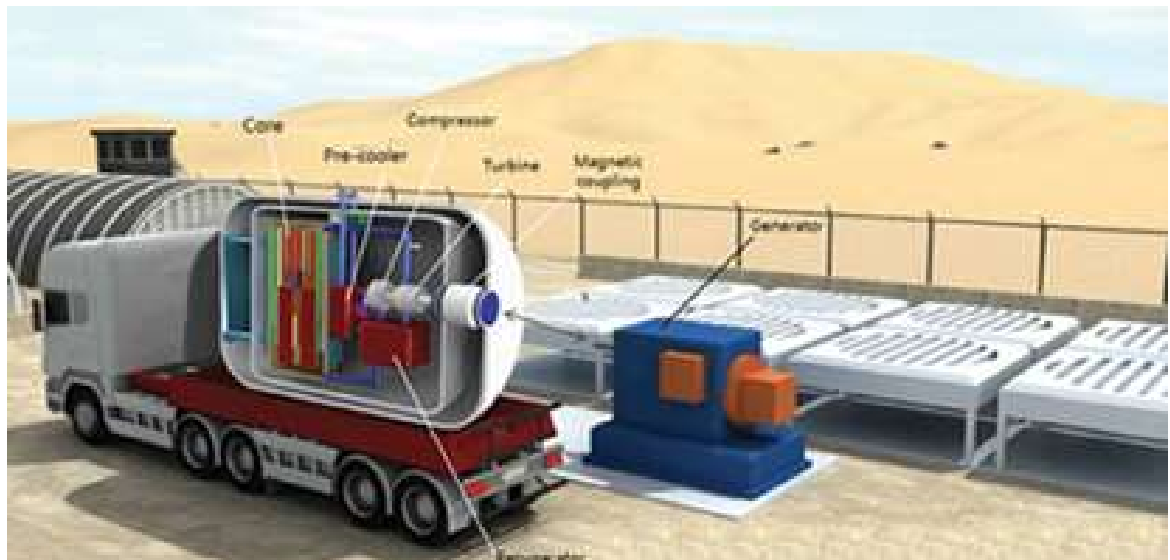


As the existing large scale nuclear reactors reach end of life, there will be no choice but to replace them with multiple Small Modular Reactors (SMRs) of which up to 500 would be necessary over 26 years to 2050, in order to replace the UK's daily energy needs, which are currently met by Gas, Oil, Bio-mass and Coal. This increase in power production capacity will be essential to support up to 23 million 'all electric' homes in the UK, plus the gradual replacement of up to 36 million Petrol and Diesel vehicles over 26 years to 2050.

Traditional Nuclear Power-stations, produce around 2,000 Mw each (2Gigawatts) which is enough electricity for around 2 million homes. These can be the size of a small town, but as they become 'end of life', their capacity can be replaced at the same secure locations with Small Modular Reactors (SMRs). This means that the National Grid's 'entry points' can be re-used, as creating new Nuclear sites in the UK would be very difficult.

Small Modular Reactors are being developed by Rolls Royce and other global manufacturers. These are similar to the Power Plants on Nuclear Submarines, so are much smaller and quicker to build, as when assembled, they would just consume an area equivalent to two football pitches. These would provide 440 Mw each and can almost be 'delivered by truck' to secure nuclear sites and each one would power up to 500,000 homes.

Eventually, some of these could even be built off-shore on Oil-rig type structures, but that could be controversial and require a great deal of public debate.



#### 18. **Is Nuclear waste dangerous?**

Nuclear waste is dangerous and some of it takes thousands of years to 'decay' to become non-dangerous, but the world has developed safe and secure methods of transportation and storage. Nobody has ever died in the nuclear waste

industry, whereas hundreds, and possibly thousands of people have died in the coal, oil and gas industries.

To draw an analogy, if all the dangerous nuclear waste in the world, which is only around 8% of all nuclear waste ever produced, was stored in one place, it would fill the equivalent size of Wembley Stadium in London. This could be compared to all the CO<sub>2</sub> which mankind has produced in the last 150 years, would fill **every building** in the UK and Europe.

So, whilst mankind pumped this invisible waste into the atmosphere for 150+ years, thinking there were no consequences, it has now become an enormous 'planet killer' versus the tiny amount of nuclear waste the world has learnt to store and safely deal with.

**19. Can the UK distribute or store a 6 fold increase in electricity?**

The National Grid in the UK is over 100 years old, but has been progressively expanded and modernised for decades whenever a new power station was built or demand increased.

However, nothing can deliver 6 times the capacity it was designed for, so over the next 26 years and beyond, it will have to be enormously upgraded to cope with 'all electric' homes and personal vehicle transport. This will be achieved 'organically' as and when new wind farms, solar farms and re-commissioned nuclear power stations using SMRs come on-line.

Whilst this will require more Pylons which are environmentally unpopular, power sources will become more localised nearer the point of use, such as rooftop solar, localised wind farms and off-shore wind farms distribute all around the UK coast as near as possible to large centres of population.

Another big new technology will be electricity storage using ever improving battery technology and the 'holy grail' of energy storage, which will be turning excess electricity when there is too much wind or excess nuclear capacity at night, into Green Hydrogen, which can be stored, transported and sold for vehicle power in exactly the same way that petrol and diesel has been for over 100 years (see below).

**20. Green Hydrogen will save Planet Earth?**

Hydrogen is the most abundant element on the surface of the Earth and across the entire Universe, and can never run out, as once expended as a fuel, it turns back into water.

All around the world, Green Hydrogen plants are being planned and built, such that an estimated 600 million tonnes will be produced every year by 2050, which

is enough to power 2.4 billion vehicles for 12,000 miles a year each, which is **more than** all the mileage covered by every vehicle each year in the world today.

Green Hydrogen is made by passing an electrical current produced from wind or solar or nuclear farms through water, including seawater, which splits the liquid into two gases of Hydrogen and Oxygen.

This is called Green Hydrogen as it doesn't produce any CO<sub>2</sub> during manufacture or use, and can be stored and transported as a high pressure liquid and then used in vehicles in exactly the same way petrol and diesel is now. For example, there are a number of Hydrogen consuming vehicles made by Hyundai and Nissan and most other manufacturers will eventually produce their own versions in the next 2 to 5 years.

This Green Hydrogen is pumped into the vehicle, from a pump which works like a petrol pump, which takes less than 5 minutes, (compared to a number of hours required to recharge Battery Electric Vehicles), and then it's converted to electricity to operate the vehicle, exactly as if it was a Battery Electric Vehicle (BEV).

Once used, the Green Hydrogen recombines with Oxygen in the surrounding air, and turns back to water, which is pure enough for a human to drink.

A typical refill of one of the above cars will dispense 5 kilogrammes of liquid Hydrogen, which will give a mileage range of 300 miles (approx.), but the bigger the Hydrogen 'tank' the more miles the vehicle can cover, with very little fuel weight added, e.g. a 600 mile range only requires adding another 5kg of liquid Hydrogen, whereas that would weigh 50+kg if it was petrol and if a Battery Electric Vehicle was to have a 600 mile range, it would require another 500kg of batteries, which is the equivalent weight of 7 average adults.

There are approximately 30,000 Hydrogen cars in the world today, mostly in California where they built dozens of refuelling stations, which are usually just another set of pumps at existing petrol stations, so large scale infrastructure or underground pipelines are **not needed**.

Due to battery weight, it's very difficult to make large electric trucks (HGVs), but Green Hydrogen can power them exactly as petrol or diesel does today.

Green Hydrogen can be made forever, using excess off-shore wind which is a frequent problem in the UK, or overnight nuclear capacity, then stored as liquid Hydrogen, and used whenever and wherever petrol or diesel is usually sold. It also means that up to 36 million vehicles would not have to be recharged via the

National Grid, which would enormously reduce the number of new Pylons needed, so its 'win / win' and there are no down sides.

Effectively, the UK would become the 'Saudi Arabia of wind' and we would no longer have to import much liquid fuels from other parts of the world.

## 21. **Do electric cars help the climate crisis problem?**

Green Hydrogen vehicles, as described above, work exactly like Battery Electric Vehicles (BEVs), but they have Hydrogen fuel cells for power and tiny batteries by comparison, and don't create CO<sub>2</sub> during use.

Standard BEVs have existed for over 100 years, and for example, all milk floats built in the 50s, 60s and 70s, were BEVs. Since then, millions of personal transport BEVs have been manufactured around the world, but 70% of the electricity they use is supplied from power stations using fossil fuel, so 70% of the CO<sub>2</sub> problem is simple moved rather than solved.

There are dozens of global BEV brands particularly in China that have been operating for more than 20 years. As a result, China now has millions of scrap BEV batteries piling up in their scrap yards, as they are difficult and highly polluting to dispose of. The same problem is now occurring around the rest of the world, but so far, on a smaller scale.



The batteries in BEVs are also very polluting to manufacture, and they use increasingly rare minerals such as Cobalt, Lithium and Nickel, much of which is mined in Africa, often by thousands of children working underground, digging

with their hands and basic tools, many of which suffer injuries and eventually life-long illnesses.



The batteries in BEVs are also very heavy, as an average BEV weighs almost double what the same size petrol or diesel car would weigh and so are very heavy on tyre use, which is another source of major global pollution in terms of manufacture, usage and disposal.

As an example, when a vehicle tyre is fully used, it weighs 5% less than it did when manufactured, and that 5% of highly polluting rubber, gets washed into road drains, into rivers, out to sea, eaten by fish and digested by humans!

## 22. **Green Hydrogen versus Petrol and Diesel vehicles?**

As shown above, there are big downsides to petrol and diesel vehicles, some significant downsides to Battery Electric Vehicles (BEVs), but **no downsides** to Green Hydrogen cars, truck, ships or airplanes, which are all explained below.

Until late 2023, the UK was going to ban the sale petrol and diesel vehicles by 2030, having given the vehicle manufacturers 10 years notice. However, in late 2023, Rishi Sunak shamefully did a U-turn on that policy, causing chaos and failed investments in that industry.

It was shameful, because he implied it would 'bankrupt' the UK economy, when in fact it would have created a new industry, a new export, and a GDP boost, especially as the public did not have to stop using their petrol or diesel vehicles in 2030, so there was no pressure on the public. As most vehicles only have a 15 or 20 year life, most would need replacing over the 26 years to 2050 as part of the normal economic cycle, and not cause a bankruptcy wave as falsely predicted by Rishi Sunak.

Now that the UK Government changed in 2024, they should re-instate the policy as a minimum for all vehicles purchased by Central Government, Local Governments, all Government Contractors, all public bus fleets, the NHS and all Military vehicles other than Front-line battle vehicles.

This would start the Green Hydrogen industry in the UK, where Green Hydrogen is easy to produce from excess solar, wind and off-peak nuclear electricity, so it is a form of electricity storage and it can be transported and sold, just as petrol and diesel has been for 100+ years, as it does **not require** specialised national infrastructure or underground pipe networks.

This for example could start in London and around the M25, then extend along the main motorways to Scotland and Wales, and eventually across the whole UK. A good analogy, is that 150 years ago, most people in the UK didn't have access to petrol or diesel, but in the case of Green Hydrogen, it could be available all across the UK in 10 years or less, as it will be in most developed countries by that time.

Once the Government was using Green Hydrogen and it was available in London, then on all Motorways, then around the whole UK, the Private Sector would make similar investments to slowly convert its vehicle fleets, and the public would follow, so it would be 'win / win' for the economy, the Public and the environment.

### 23. **Solving the Shipping problem?**

Large ocean going ships, particularly oil tankers, container and freight ships, are a major contributor to global GHG emissions, as they have giant diesel engines, which burn the cheapest and dirtiest grade of liquid fuel in vast quantities.

However, many new large ships are electrically driven using Azipods which drive and steer the ship, given far greater speed and manoeuvrability. The electricity for these Azipods is still produced on-board by large diesel engines, but they can be replaced by large Green Hydrogen fuel cells, exactly as per the car and truck examples above.



Many new large ships are driven and steered by large electric motors, so there is no traditional central engine propeller or rudder. The required electricity can be produced on-board by using Green Hydrogen which can be produced anywhere in the world from excess wind, solar or nuclear capacity, thus reducing the need for highly polluting Marine Diesel.

#### **24. Solving the Aviation problem?**

As outlined above, the UK and all developed countries will have to decarbonise as many industries as possible, but if home heating and personal transport can't be tackled, then Net Zero can't be achieved.

Once they are tackled, Aviation decarbonisation is high on the agenda, and this could be partly achieved using Green Hydrogen. This is because slower planes that currently have propellers could be converted to be electrically operated using Green Hydrogen in exactly the same way as vehicles do, as described above.

For faster planes that use jet engines, Green Hydrogen can actually be 'burnt' in the same way Aviation fuel is, but this is a very undeveloped technology, so not proven at scale yet. In the meantime, many companies are developing Sustainable Aviation Fuel (SAF) which produces a fraction of the CO<sub>2</sub> produced by current Aviation Fuel, so that would be a partial contributor to global Net Zero.

#### **25. Solving the home heating problem?**

In the UK, there are approximately 23 million homes, which mostly use Gas for heating, hot water and cooking, and a similar scale problem exists in most developed countries, with an estimated 2 billion 'homes' worldwide, many of which burn wood which also produces CO<sub>2</sub>.

If the gas at home problem can't be solved in the UK, then Net Zero will never be possible, but the good news is that it can. As detailed above, over the next 26 years, the UK will have to increase its electricity capacity and distribution up to 6 fold (600%). Once that capacity starts to be available, a million homes a year could be converted to 'all electric' and eradicate the need for burning gas which produces large quantities of CO<sub>2</sub>.

This can be achieved by replacing gas boilers with electric boilers, which are the same physical size, so fit in the same space and will provide heating and hot water without changing the pipes or radiators in the home. As gas boilers only have a safe working life of 25 years, most will naturally in the economic cycle, need replacing over the next 26 years to 2050, so will not bankrupt the UK economy as predicted by the previous UK Government in 2023.

The downside to electric boilers is that they are more expensive to operate than gas boilers, so the UK, and all developed countries will have to find a way to reduce the cost of domestic electricity, which should be possible in the UK, as we would no longer be at the 'mercy' of international energy prices and our gas and oil imports would be eventually reduced by 80% to 90% when most homes don't need gas, and most vehicles don't need petrol or diesel, mostly achieved over the next 26 years.

Even if it took 50 years instead of 26, all developed countries would be making good progress towards their individual Net Zeros, which would start to reverse man-made CO<sub>2</sub> levels and Global Warming.

An alternative to electric boilers is Air Source Heat Pumps, but they are far more costly than electric boilers, and they require major systems replacements in most homes, so have proved unpopular. They also require a heat exchange unit on the outside of the home, similar to an external air-conditioning unit, which can require planning permission as they are noisy for nearby neighbours.



*Air Source Heat Pump for a 2 bedroom flat.*

As all properties don't have outside space, Heat Pumps can be a problem, so ultimately electric boiler may become the majority solution. However, heat Pumps may work well in new build homes which are highly insulated and may not have a Gas supply.



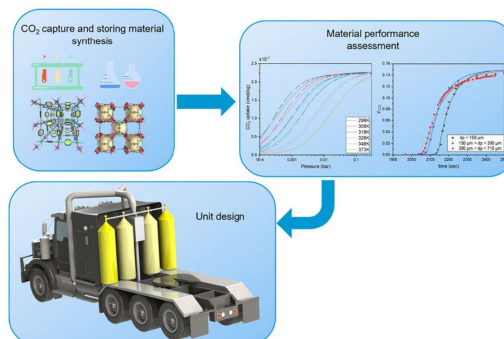
*Air Source Heat Pumps require specialist internal systems, so are often not compatible with the Radiators found in most UK homes.*

## 26. New Technology?

As outlined above, mankind now has 100% of the Technologies needed to reduce CO<sub>2</sub> emissions and reverse global warming, but they have not been deployed at anywhere near the scale required, and in reality, probably **only at 5%** of the scale required.

If those technologies were fully deployed at the scale required, there are also some new and experimental or embryonic technologies that could further assist, one of which is Carbon Capture Storage and Usage (CCSU). These are relatively simple machines that ‘suck’ CO<sub>2</sub> out of the air at ground level, and either store it underground, into the giant caverns where oil and gas have been extracted, effectively in rock formations where it ‘bonds’ to the rock and is locked in forever, or it can be converted to a solid form and used in manufacturing processes which would not release the CO<sub>2</sub> ever again.

Research is also being undertaken to capture and store CO<sub>2</sub> emissions from moving vehicles, but this is still embryonic.



There is also an embryonic technology called Nuclear Fusion, as distinct from nuclear fission used in normal nuclear plants, which chemically and physically replicates the inner workings of the Sun, on a very small scale inside fusion machines on earth. There are many such experimental reactors operating or being built around the world, and if they eventually work as designed, they would produce **limitless electrical** energy using zero fuel and producing zero waste and zero CO<sub>2</sub>.

However, some of these machines have been 95% working for 30 or more years, but have never produced more electricity than they consume, so are not yet commercially viable, but if and when they do, they will become the 'holy grail' of energy production that will partially save humanity.

### 27. **Is the above enough?**

After 50 years of discussion and 28 global COP conferences, the world has achieved 'all but nothing' towards slowing or reversing the Climate Crisis, which actually worsens with every 55 billion tonnes of GHGs that mankind 'dumps' into the atmosphere every year.



**Every day,** Humans cause or directly emit 151 Million Tonnes of Carbon in to the Atmosphere.

This equates to 105,000 of these **per minute.**

That equates to **55 Billion** of these per year.

There are many ways for developed countries to start achieving their individual Net Zeros, which would by default create Global Net Zero progress, but if the UK and other developed countries don't do the above as a minimum, then no amount of recycling, or reduced flying, or changing of human diets will make even the slightest dent in the climate crisis.

This will eventually badly affect any person under 40 years old today, and **devastate the lives** of most people under 10 years old today, in all parts of the

world including the UK, as opposed to just the Southern Hemisphere who have been worst affected so far.

## **28. What would UK Net Zero cost?**

It is clear from the information above, that with the correct Government policies, to increase Nuclear capacity, increase National Grid capacity, phase out gas boilers and petrol / diesel vehicles, and fully embrace Green Hydrogen as the rest of the world is, then Net Zero in the UK would become at least 50% achievable, and if most developed countries did the same, then man-made Global Warming could still be reduced and reversed.

However, the previous UK Government failed to establish a correctly resourced Net Zero Ministry, and failed to appoint a Net Zero Minister with any relevant experience, and if they gain any, they are quickly moved on, as if the role doesn't really matter.

They also tried to incompetently pass the cost of climate crisis onto the public, which schemes such as ULEZ, Green taxes, and highly inefficient recycling, which raise no real net revenue, but create an 'anti-Green' culture, and most importantly, has had no effect on the ever increasing CO<sub>2</sub> concentration in the atmosphere.

They also failed to make any investment in Net Zero, but claim the few hundred £million (0.05% of GDP) they have spent on compensating Southern Hemisphere countries, or saving Hinkley Point C's non UK builders from financial collapse, is the UK's world leading example on how to progress Net Zero, when in fact we haven't really started.

The previous UK Net Zero Minister attended dozens of climate meetings and conferences and falsely claims that the UK has decarbonised 50% of its economy, but what she actually she meant was 50% of our electricity production, which is just 2% of the UK economy, so we have 98% of Net Zero still to achieve, not just 50%.

The opposition then, who are in power now, quite correctly said they would invest £28billion a year (1% of GDP), but u-turned when challenged by the Government at the time.

£28billion is just 1% of the UK's GDP, and the Green Transition outlined above would produce an estimated 2% boost to UK GDP, so would be 'self-funding'. This is not a £28billion spend, but a £28billion investment, which would be matched or exceeded by the Private Sector, as every new wind farm, solar farm, small nuclear plant and Green Hydrogen plant would be highly profitable.

The chart below shows that the UK Government currently spends 0.05% (highlighted in red) of UK GDP on Net Zero, when in fact a 1% (highlighted in green) investment is needed and would be self-funding.

| UK Government Tax Spending categories | UK annual spend 2022 | £/Capita/Yr @ 68,700,000 | % per UK Capita @ 68,700,000 | % of UK GDP @ £2,700,000,000,000 |       | UK Government Tax Spending categories | UK annual spend 2022 | £/Capita/Yr @ 68,700,000 | % per UK Capita @ 68,700,000 | % of UK GDP @ £2,700,000,000,000 |
|---------------------------------------|----------------------|--------------------------|------------------------------|----------------------------------|-------|---------------------------------------|----------------------|--------------------------|------------------------------|----------------------------------|
| Healthcare (NHS & Social)             | £207,100,000,000     | £3,015                   | 24.2%                        | 7.7%                             |       | Healthcare (NHS & Social)             | £207,100,000,000     | £3,015                   | 23.5%                        | 7.7%                             |
| Pensions                              | £178,500,000,000     | £2,598                   | 20.8%                        | 6.6%                             |       | Pensions                              | £178,500,000,000     | £2,598                   | 20.2%                        | 6.6%                             |
| 'Other' spending                      | £97,600,000,000      | £1,421                   | 11.4%                        | 3.6%                             |       | 'Other' spending                      | £97,600,000,000      | £1,421                   | 11.1%                        | 3.6%                             |
| Interest                              | £87,200,000,000      | £1,269                   | 10.2%                        | 3.2%                             |       | Interest                              | £87,200,000,000      | £1,269                   | 9.9%                         | 3.2%                             |
| Welfare                               | £86,800,000,000      | £1,263                   | 10.1%                        | 3.2%                             |       | Welfare                               | £86,800,000,000      | £1,263                   | 9.8%                         | 3.2%                             |
| Defence                               | £60,200,000,000      | £876                     | 7.0%                         | 2.2%                             |       | Defence                               | £60,200,000,000      | £876                     | 6.8%                         | 2.2%                             |
| Education                             | £54,200,000,000      | £789                     | 6.3%                         | 2.0%                             |       | Education                             | £54,200,000,000      | £789                     | 6.1%                         | 2.0%                             |
| Transport                             | £34,400,000,000      | £501                     | 4.0%                         | 1.3%                             |       | Transport                             | £34,400,000,000      | £501                     | 3.9%                         | 1.3%                             |
| 'General' Gov Costs                   | £26,500,000,000      | £386                     | 3.1%                         | 1.0%                             |       | 'General' Gov Costs                   | £26,500,000,000      | £386                     | 3.0%                         | 1.0%                             |
| Police, Fire, Justice etc             | £24,100,000,000      | £351                     | 2.8%                         | 0.9%                             |       | Police, Fire, Justice etc             | £24,100,000,000      | £351                     | 2.7%                         | 0.9%                             |
| Climate Change Reversal               | £2,000,000,000       | £29                      | 0.2%                         | 0.1%                             | >>>>> | Climate Change Reversal               | £26,000,000,000      | £378                     | 2.9%                         | 1.0%                             |
|                                       | £856,600,000,000     | £12,469                  | 100%                         | 32%                              |       |                                       | £882,600,000,000     | £12,847                  | 100%                         | 33%                              |
|                                       |                      |                          |                              |                                  |       |                                       | 3.04%                |                          |                              |                                  |
|                                       |                      |                          |                              |                                  |       |                                       | Annual increase      |                          |                              |                                  |

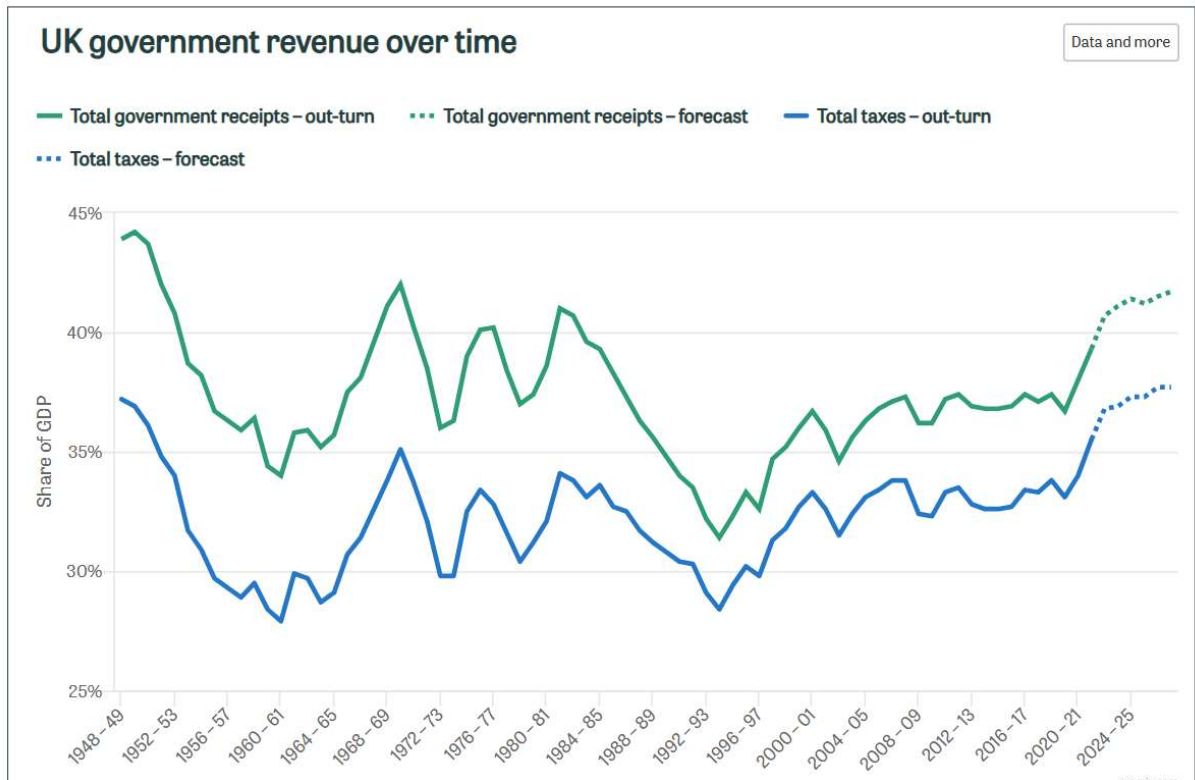
As shown on the graph below, the UK Government's annual debt interest reached an all time high of £115billion in 2022-23 which was 4.5% of GDP, but it is forecast to fall to 'just' £77billion (2.7% of GDP) in 2025-26, which means the Government would theoretically have an extra £38billion to spend.

Even half of that £38billion would be enough to kick-start the Green Transition, which the Private Sector would follow, as it would be highly profitable to build new wind farms, solar farms and new but much smaller (SMRs) nuclear plants.

Central government net debt interest: latest forecast



In addition to UK Government's annual interest payments falling from 2024 onwards, the overall tax receipts are forecast to increase as per the graph below, hence giving the UK Government more to invest in the climate crisis reversal.



Between the fall of Government interest rates and the increase in tax revenues, there will be an extra £70billion (approx.) to spend, and even 25% of that would go a long way towards the self-funding green transition.

The same economic ‘self-funding’ would apply to the replacement of 23 million gas boilers over 26 years, as would the replacement of 36 million petrol and diesel vehicles over 26 years, all part of the normal economic cycle, and not a bankrupting scenario for the UK economy as the previous Government falsely predicted and publicised.

The previous Government also falsely argued that the British public would be ‘angry’ if they invested money on tackling the climate crisis, which based upon the concept of spend 1% of GDP to gain 2%, is total nonsense. Even if the argument was that we must spend (rather than invest), 1% of GDP to save the planet’s ability to support human life, then who in their right mind would argue against that?

A good analogy would be if the roof was falling off a person’s house and they had to spend 1% of their annual income to fix it, would they decide ‘not to bother’, especially if they had a grant for 2% to do it!

The previous Government has also failed to calculate or publicise the 'cost of doing nothing' about the climate crisis, which will become incalculable when the CO<sub>2</sub> concentration in the atmosphere hits 100% saturation in the next 10 to 20 years. It should be noted that 100% CO<sub>2</sub> saturation is actually only 0.05% of the atmosphere, but that is the 'Tipping Point' at which global temperature rise will become irreversible.

Whether the British public understand the climate crisis, or don't believe it, or don't care, or can't afford to care, it is the first duty of any Government to protect its citizens, so it should be done regardless.

If it was an Asteroid scheduled to hit the Earth in less than 10 years, would the Government really do nothing because the British public didn't understand it, or might get 'angry' because the Government has done its duty to save them?

### **29. What resources would UK Net Zero need?**

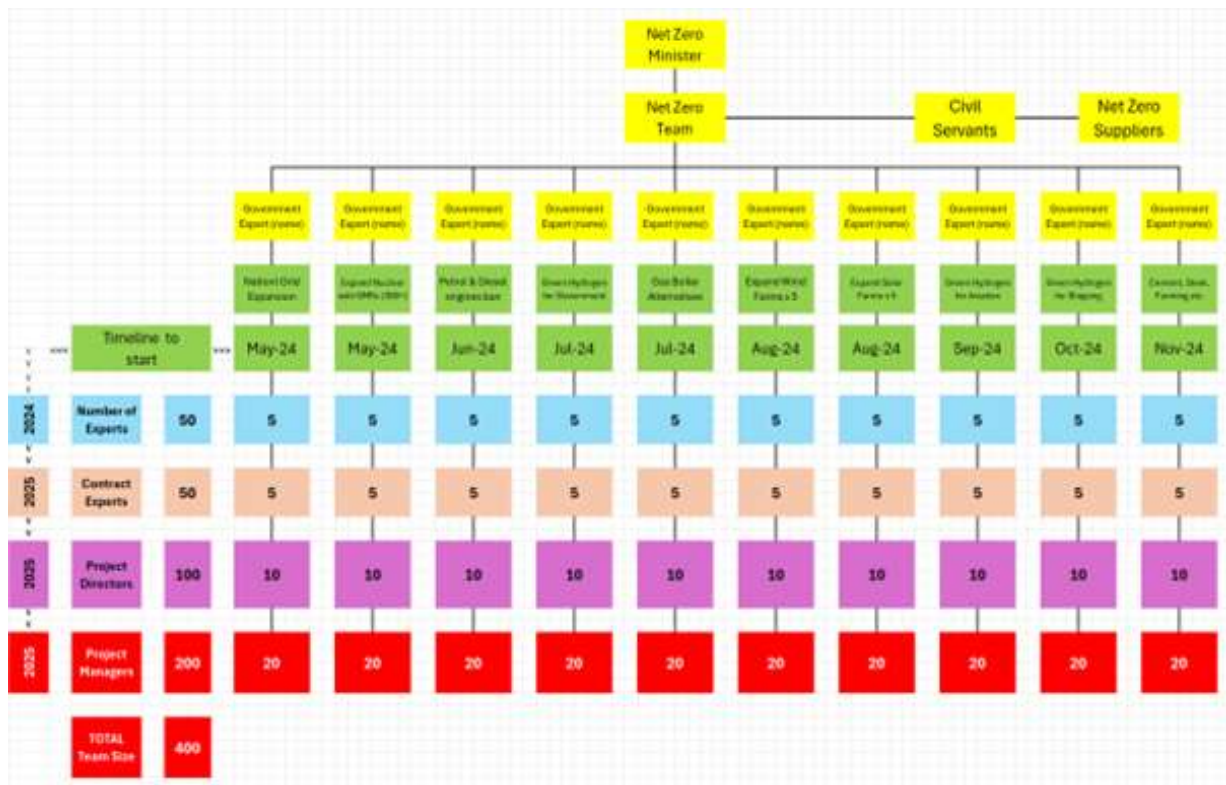
The new UK Government, as of July 2024 will need to do everything very differently from the previous government, which would not be difficult as they did 'all but nothing'.

Actions required would be.....

- a) Stop lying to the British Public that UK Net Zero is not urgent and would Bankrupt the economy if started now.
- b) Explain to the British Public, that £28billion is 'just' 1% of GDP and would create a 2% boost, so would be self-funding.
- c) Explain to the British Public that if the Government invests in new technology, then the Private Sector, including Manufacturers, Banks, Pension Funds etc would also invest, as building more wind farms, more solar farms, more small (SMR) nuclear plants etc would be highly profitable.
- d) Explain to the British Public that the UK has made 2% progress towards Net Zero and not 50% as falsely claimed by the previous Net Zero Minister.
- e) Explain to the British Public, that doing 'nothing' is no longer an option.
- f) Explain to the British Public that the cost of doing nothing will be 'incalculable' in the near future.
- g) Explain to the British Public that Sea Level rise, Ocean imbalance, Land Loss, Extreme weather, Wild fires, Crop failures, Forced migration are all happening now, and will get worse in next 5 to 20 years, so this is a **'now' problem**

- h) Appoint a Net Zero Minister with knowledge, passion, and ambition for UK Net Zero and leave them 'in post' for many years.
- i) Commit a budget for Government Staff to run the Net Zero Ministry, including many Government Experts who will need to be recruited.
- j) Commit to a budget for Net Zero Experts to work for the Ministry including Technology Experts, Economists, Scientists, Engineers, Project Directors, Project Managers, Technicians, Planners and many others. This Team could eventually be up to 400 Experts in their respective fields at a cost of up to £50million a year, but will be the 'do or die' Team that will be essential for the UK to keep Net Zero pace with other developed countries.

An example Team structure is shown below, but this will require large scale discussion, review and authorisation.



- k) The above Team, will need to rapidly engage with specialist suppliers, such as National Grid, Nuclear SMRs, Green Hydrogen, Heat Pumps, Electric Boilers, Wind, Solar, Hydro etc, as very soon, all UK and global suppliers will be maxed-out with global orders, so if the UK engages too late, which it almost is, then we will be 'back-of-the queue' even if the supplier is UK based.

- l) The UK's Nuclear Electricity needs to be urgently reviewed, as currently we are reliant on out-dated, over-priced new plants being build by non-UK companies. The latest is Hinkley Point C, which will cost 250% more than using latest generation SMRs, and is 10+ years behind schedule and £10billion (approx.) over budget. In addition, many existing Nuclear Plants are scheduled for closure, and if we don't order SMRs to re-commission them, the UK will be 'back-of-the-queue' when we eventually realise we need hundreds of them.
- m) The above Team will need to urgently engage with Private Sector Investors, such as specialist manufacturers, Banks, Pension Funds etc, to give them confidence to follow behind the Government's technology Policies and Investment Plans, which are currently mostly unclear to those markets.
- n) The proposed Team will need to urgently launch enormous projects such as GB Energy, National Grid expansion, 'All Electric Britain', New smaller Nuclear (SMRs), partial ban on Gas in homes, partial ban on petrol and diesel engines, Green Hydrogen for Government vehicles, 5 x existing wind farms, 5 x existing Solar, National Energy Storage, Carbon Capture, Storage and Use (CCSU) etc.
- o) Encourage the Education Sector to attract, train, mentor and monitor thousands and possibly tens of thousands of additional Engineers, Electricians, Plumbers etc, before they are all attracted by 'big bucks' to work overseas on Net Zero for other countries.
- p) Develop strategies and implementation plans for 'harder to tackle' industries, such as Aviation, Shipping, Farming, Cement, Steel etc.
- q) Deliver Net Zero before any other developed country, as the UK will now be competing for Expertise, Resource and Supply Chains, to a level never seen before on a world-wide scale. A second Industrial Revolution but this time, the UK would not be the first, the quickest, the richest, the most ambitious, or the most capable etc.

### **30. Conclusion**

UK Net Zero would create thousands of new jobs and give the UK a new and enormous export industry if we get started ahead of some of the developed countries, but the previous Government up to July 20204 started a 'culture war' which suggested that any people who believe in Net Zero are 'Zealots' to be ignored. This can only be described as a 'Flat-Earth' policy by the previous Government, as portrayed in the recent movie called 'Don't look up' made in 2023 by Leonardo Di Caprio who is also a global Climate Crisis expert.

That movie portrays the Climate Crisis as an expected Asteroid strike, which all the Governments of the world ignore for unbelievably ridiculous reasons, until it destroys the Planet.

**Could mankind be so 'stupid' to act that way about the Climate Crisis, well so far it seems so, but its not too late yet.**

More to follow.....

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