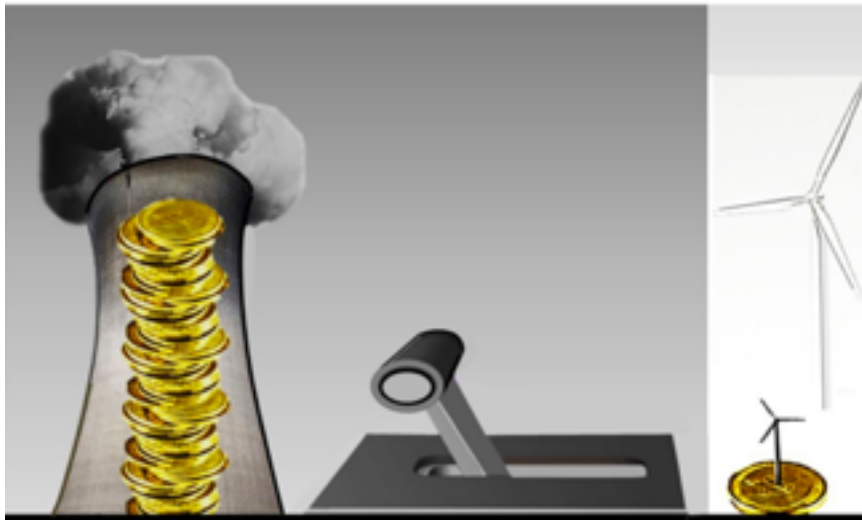


Stop and Switch

Suicidal Subsidies and the Climate Solution

Peter D Carter (revised 2014)

FOSSIL FUEL SUBSIDIES WORLD-WIDE ARE
\$Trillions / year !



Summary

The single, surest, fastest measure to get greenhouse gas emissions to decline is to stop all government fossil fuel subsidies in short order.

If there is no action on subsidies the world will remain dependent of fossil fuel energy and will be committed to a future of catastrophic global climate change.

It is vital that stopping fossil fuel subsidies features as the priority in the September 2014 New York Climate Change Week and the December 2014 Lima UN COP 20

Civil society NGOs need to immediately (Summer 2014) apply all their united resources to stop the subsidies, as a survival imperative.



CLIMATE EMERGENCY INSTITUTE

The Health and Human Rights Approach to Climate Change

SWITCH

In this monograph Switch means:

- > **Switch energy subsidies from fossil fuels to clean lowest carbon renewables.**
- > **Switch all energy from burning fossil fuels and biomass to clean energy.**

UNEP definition of climate change mitigation
Switching from fossil fuels to other sources that emit .. no noxious greenhouse gases.

Today, we are fixed on a world energy economic scenario that will lead to a global temperature increase of at least 2°C before 2050 and 6°C by 2100.

Only James Hansen in 2008 has recognized that continuing to emit CO₂ with already committed climate change (extra warming) is a crime.

Today's climate situation is the crime of all time. The evidence makes this certain. No plan to cut emissions- all plans are to increase fossil fuel use.

No action to stop (record high) fossil fuel subsidies.

We are committed (locked in) to a warming of at least 2C (without geo-engineering) The 2C target is disastrous for billions of people, global ecosystems, coral reefs and the oceans (J. Hansen & 16 other experts Dangerous Climate 2013).

Arguably the largest obstruction to mitigating global climate change is the persistence and even increase in fossil fuel subsidies.

A recent (2013) comprehensive study of fossil fuel subsidies by the UK Overseas Development Bank concludes that *Fossil fuel subsidies undermine international efforts to avert dangerous climate change and represent a drain on national budgets. They also fail in one of their core objectives: to benefit the poorest. Phasing out fossil fuel subsidies would create a win-win situation. It would eliminate the perverse incentives that drive up carbon emissions..(Time to change the game: fossil fuel subsidies and climate).*

It is 2014 and there is no plan to stop fossil fuel energy government subsidies.

This is the case even though the IEA, World Bank IMF and OECD have all issued reports saying these subsidies are not justified and are damaging.

There is a catch to their recommendations in that they are now calling for the reform of 'wasteful' fossil fuel subsidies, which is hard to estimate and will take many more years of research giving governments an excuse not to act. Clearly carbon pollution will not stop till all fossil fuel subsidies are stopped, and there is no reason for any more delay.

The big news on fossil fuel subsidies is a 2013 IMF report (Energy Subsidy Reform : Lessons and Implications) that found, at an under-estimate, world fossil fuel subsidies amount to US\$1.9Trillion.



The IMF executive summary says that *energy subsidies have wide-ranging economic consequences. The subsidies aggravate fiscal imbalances, crowd-out priority public spending, and depress private investment, including in the energy sector. Subsidies also distort resource allocation by encouraging excessive energy consumption, artificially promoting capital-intensive industries, reducing incentives for investment in renewable energy, and accelerating the depletion of natural resources. Most subsidy benefits are captured by higher-income households, reinforcing inequality. Even future generations are affected through the damaging effects of increased energy consumption on global warming.*

The IMF 2013 report included the enormous externalized socio-environmental costs of fossil pollution in the subsidy calculation.

What are externalized costs/externalities

For decades the costs of hazardous environmental pollution to the public health due to the many acute and chronic diseases caused by pollution has not been costed and so not included as an economic cost in cost benefit calculations for the control of pollution. Fossil fuel air pollution for example has been found to contribute to a long list of chronic diseases including childhood and adult cancers. For many years research has calculated these costs in monetary terms, with rising costs as the research has progressed. There is no reason whatsoever now for not including the huge socio-environmental monetary/economic costs of fossil fuel pollution in assessments and decision making.

At the 1992 Rio UN Earth nations agreed to follow a set of linked key principles (referred to by environmental community as PP3) of precaution, pollution prevention, and polluter pays. Governments have never honored these, though they reaffirmed the 1992 Earth Summit agreements at the 2012 UN Rio+20 conference.

The IPCC latest AR5 assessment acknowledges cutting back subsidies will cut GHG emissions. However the IPCC AR5 cost benefit assumptions do not include the full costs of fossil fuel pollution (nor the economic benefits of replacing fossil fuel energy with clean renewable energy). The AR5 makes no assumptions that fossil fuel subsidies will be stopped (or greatly reduced) in its (RCP) scenario projections for mitigation.

In the case of continuing huge fossil fuel subsidies we cannot say that capitalism is the cause, though capitalism has not put a stop to them. The cause is corruption-political and corporate corruption. If the large banking and fossil fuel energy wanted to stop the perverse corporations fossil fuel subsidies of course they could. Instead they have formed an evil partnership with governments that permits and encouraged the fossil fuel subsidies.

A short March 2014 article in Business Week *Why Fuel Subsidies in Developing Nations Are an Economic Addiction*, explains the troublesome history of the rise of fossil fuel energy subsidies in the industrially developing world. *"It's a failed policy," says Fatih Birol, chief economist for the International Energy Agency (IEA), "but we see that many countries continue to follow it." Subsidies endure because, as Ukraine's politicians know, getting rid of one means immediate pain for citizens, a drop in popular support, and sometimes even civil unrest.*

The IMF pegged government support worldwide for petroleum products, electricity, natural gas, and coal at \$1.9 trillion, or 2.5 percent of global GDP in 2011. This number includes the costs of damage done by subsidized fuel to public health, the environment, and infrastructure; subtract those costs, and countries still pay \$480 billion a year for subsidies, or 0.7 percent of global GDP. The spending is concentrated mostly in the Middle East, Asia, Central Europe, and the countries of the former Soviet Union. The world's heaviest subsidizer of natural gas, at 26 percent of GDP, is Uzbekistan. Venezuela supports domestic petroleum prices at about 8 percent, Iraq at 14 percent. The U.S., the biggest subsidizer in the developed world after Luxembourg, supports gas and diesel at 2 percent.

There is no big global civil society to force governments to end the subsidies, even though this year is the pivotal 20th UN climate conference (COP20) at Lima Peru in December where the essentials of a climate treaty will be determined to be fine tuned and signed at COP21 in Paris December 2015.

The UN negotiations are deadlocked, and by all accounts will remain so for years. We really are looking at the end of the world, but the issue of government subsidies to GHG polluting industries is not on the climate agenda.

This monograph documents the full enormity of world fossil fuel subsidies and the consequences.

Without correcting the greenhouse gas (GHG) pollution encouraging subsidies, planetary catastrophe can only be expected, and there is no more time to waste in order to avoid it.

Stopping fossil fuel subsidies is the single most certain, most rapidly applicable and acting, measure to get GHG emissions to decline.

In addition there are other sources of GHG emissions that are subsidized and they all have to be terminated in short order. All atmospheric GHG levels are so extremely high that no GHG emissions can be ignored.

Energy subsidies and expensive, damage the climate and disproportionately benefit the well-off.

(Climate Change World Bank Group. An Evaluation of World Bank Win-Win Energy Policy Reforms 2009).

Stopping all fossil fuel subsidies (including indirect or after tax) and switching direct subsidies ('Stop and switch') to clean zero carbon ever-lasting energy is a 'no brainer,' and is supported by the economics, and is the only way to a zero carbon world instead of the end of the world.

Burning fossil fuels and biomass in any way (including CCS) is catastrophically dangerous and totally unnecessary.

The lack of pressure in stopping all GHG polluting subsidies and switching subsidies to the non polluting industries is astounding.

There are powerful forces blocking subsidy reform, and as a consequence, only a most powerful voice from us all can make this happen.

It is obviously the duty of governments to stop these planet destructive subsidies and in the best interests of us all to make this obvious demand to our governments.



What are energy subsidies?

A 'negative subsidy' with respect to climate change is any government policy that is a financial incentive to continue to produce or use more fossil fuels, or that results in 'negative externalities'.

'Externalities' is an economic term meaning the costs (social or environmental) are not accounted for. Economists regard these externalities as indirect subsidies.

A 'positive subsidy' is a financial incentive to switch from fossil fuel to clean zero carbon energy.

There is no justification for subsidies to large commercial businesses that dominate the energy sector or to industries that provide services to better off households in developing countries. (World Bank The role of energy subsidies 2000)

Reports on the need to reform energy subsidies actually go back to the 1990s

The justification for subsidies is to assist in the early development of an industry that produces an important public good or beneficial externalities.

An argument used for environmentally damaging subsidies is that socially they help the poor. In the case of energy subsidies, studies have found this is not the case. In any case, global climate change hits the poor in all regions earliest and hardest.

Rising fossil fuel subsidies: IEA, IMF

The International Energy Agency has been recommending for years that fossil fuel subsidies have to be cut, which is interesting because the IEA is the agency formed to make sure oil keeps flowing around the world.

Instead they have increased. The IEA had a publicity campaign in 2008 alerting the world that fossil fuel subsidies had increased to a record US\$557 Billion. Note that 2009 was the year of the big UN Copenhagen Climate summit when it was expected that governments would get serious about cutting their GHG emissions to prevent global climate catastrophe. But the market message they had given was to keep on fossil fuels, and there was no agreement.

What this means to the world free market economy is that governments are giving a strong market signal to keep on fossil fuel energy dependency. Now it helps energy corporations to invest in harder to get (more damaging) sources of fossil fuels.

OECD

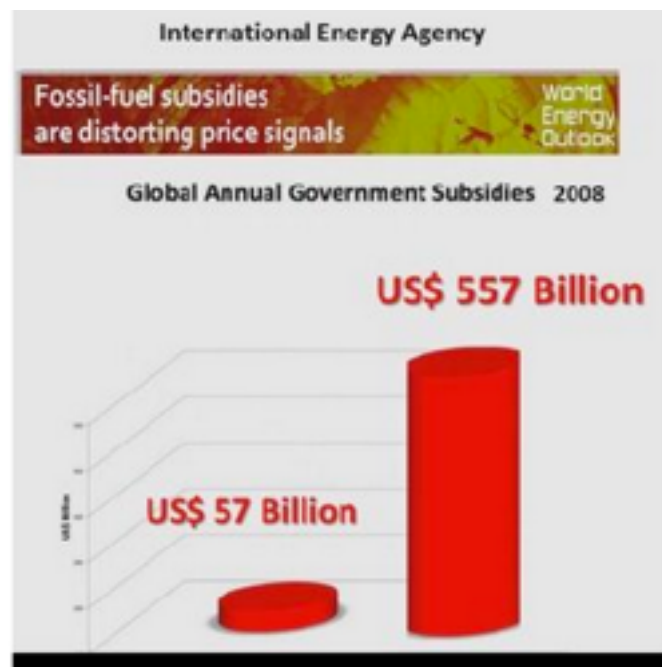
The OECD says the direct fossil subsidies should be phased out, but this will only cut global emissions 10% (H. Mounord, OECD Deputy Director, June 2011).

Fossil fuel subsidies to the long-time heavily industrialized OECD nations is much less than that to the developing nations. But the continuation of any OECD fossil fuel subsidies keeps OECD nations hooked on fossil fuels, while developing nations are being hooked on fossil fuels with the much larger subsidies.

Across its 34 member countries, the OECD has identified over 550 measures which are estimated to have an overall value of between USD 55 and USD 90 billion per year for the years 2005 to 2011.

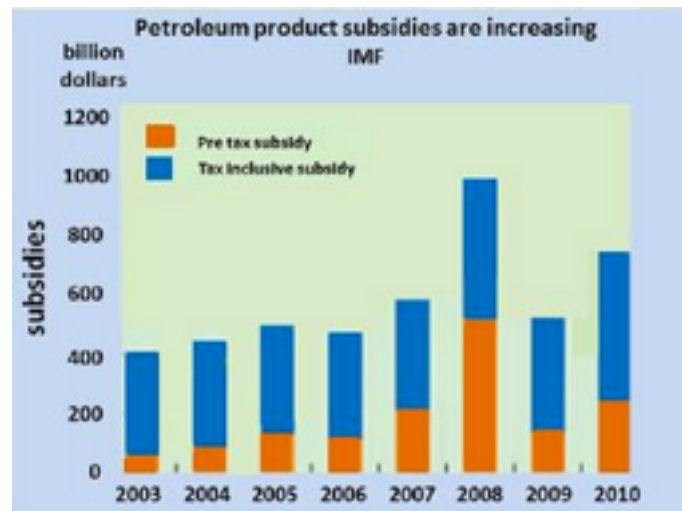
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(OECD-wide inventory of support to fossil-fuel production 2013)



The image above is from the IEA World Energy Outlook 2008.

Below is an image from the IMF on energy subsidies in 2011. Note the increasing trend and the big spike in 2008.



More fossil fuels - worse fossil fuels

Now that we are past peak easy oil (IEA 2006), the IEA predicts that world energy will be provided by the very worst fossil fuel fuels.

- More coal
- Shale oil (fugitive methane)
- Tar sands oil
- Natural gas fracking (big fugitive methane emissions)

Fossil fuel subsidies are many times larger than the IEA reports

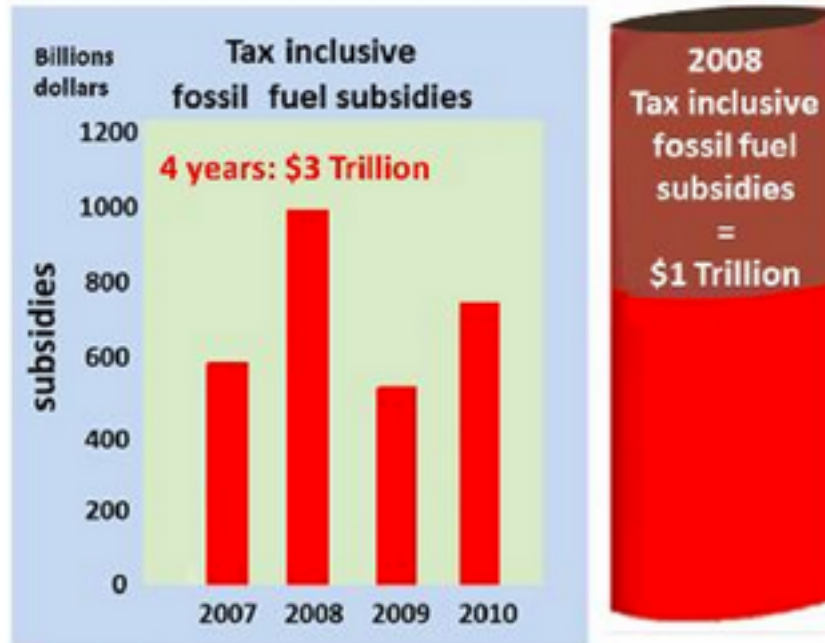
The energy subsidy estimates have omitted the tax benefits from governments and by far the largest source of subsidies which is the externalized socio-environmental costs of burning fossil fuels.

World Fossil Fuel Energy Subsidies are \$trillions a year

Tax inclusive oil subsidies amount to over half a \$trillion a year.

With externalized costs which are classified as economic indirect subsidies, the amount of fossil fuel subsidies is \$trillions a year.

A 2010 IMF report on energy subsidies, *Petroleum Product Subsidies: Costly Inequitable and Rising*, showed that the subsidies to the oil industry are much larger than even the International Energy Agency's estimates - by including tax benefits.



The above image is based on an IMF 2010 subsidy report

Externalities: indirect subsidies

This looks like the fossil fuel industries will soon be getting a trillion dollars a year in subsidies. Actually they are already getting much more.

US externalized costs for coal are \$1/2 trillion per year (Full Cost Accounting for the Life Cycle of Coal, P. Epstein 2011). Most of the fossil fuel externalities are from coal.

By scaling up US to global GDP (conservatively) this translates to \$2 trillion worldwide a year.

That makes \$3 trillion a year for all fossil fuels !!

These rough calculations do not include all the massive committed externalized climate change costs to all future generations.

Also it does not include the massive 'defense' costs of the heavily industrialized nations especially the USA, that are spent to keep influence over the world's oil deposits. The invasion was the most recent and blatant example of using massive military force to acquire control over oil in other counties. The US spends half a trillion dollars a year to keep up its military might.

As we well know fossil fuels for energy are running out and becoming more costly in every way. The future does not have energy security relying on fossil fuels. It does have everlasting energy security if the switch to clean renewables is made.

So I think several trillions of dollars a year for fossil fuel subsidies is for sure a reasonable estimate for energy security and climate change mitigation policy making

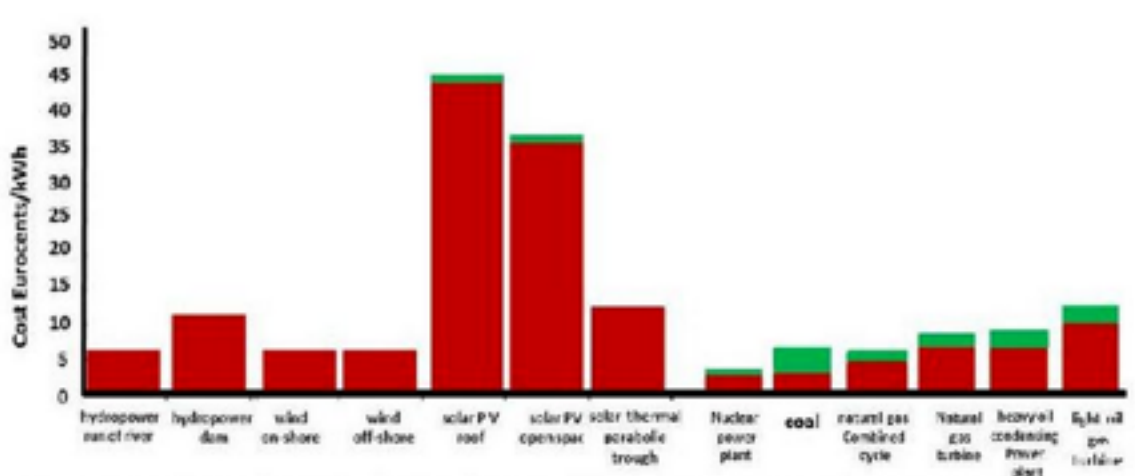
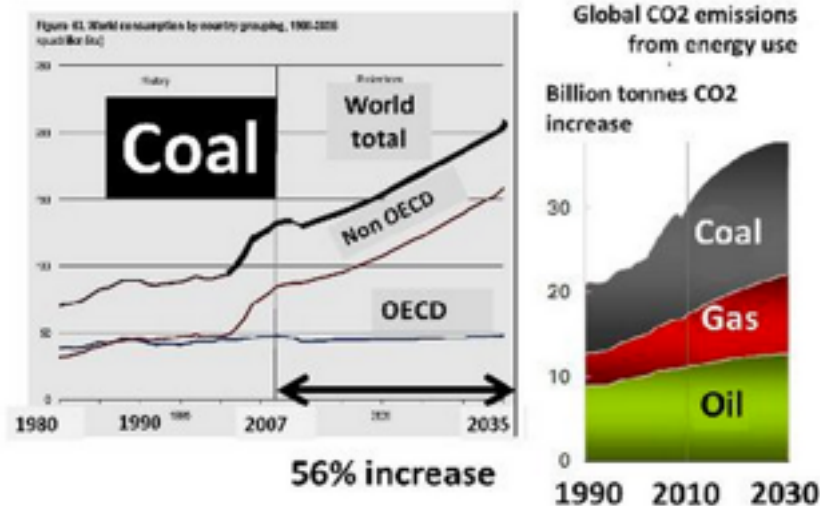


Image: Development of a set of full cost estimates of the use of different energy sources and its comparative assessment in EU countries 2009.

Coal: large externalized costs, large indirect subsidies, large emissions

Coal, as the IEA puts it, is projected to remain ‘the back-bone’ of the world energy systems providing over 20% of world energy from all sources by 2030.

There was a large increase in world coal energy production from 2000, and the US International Energy Assessment projects a 56% increase from 2007 to 2035.

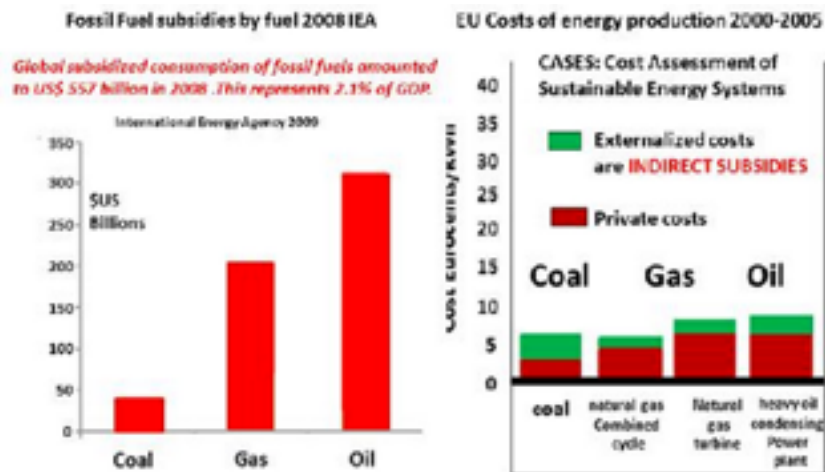


That makes coal increasingly the largest source of CO2 emissions from energy production.

Direct subsidies to coal are much less than other fossil fuels, but it is cheapest, and forecast to remain so.

That's because the externalized hidden costs of coal are huge indirect subsidies (as recognized by economists). The health and environmental damage that burning coal causes have been well known for decades. Including only these social costs more than doubles the cost of coal, making it uneconomic against solar, wind, ocean and geothermal.

To prevent global climate catastrophe, therefore, these indirect subsidies are certainly the most important, because burning more and more coal will certainly cause planetary catastrophe.



Energy Switching

Why we must switch all energy production from fossil fuels to clean renewable energy that emits no carbon. The reason is the definite climate science of zero carbon emissions.

Stopping and switching subsidies fast is an indispensable imperative of climate change science. Here are two things to remember.

Today's global temperature increase is absolutely committed to double and to last over 1000 years.

Only stopping all industrial carbon emissions (zero carbon) can stop the global temperature, climate change and ocean acidification continuing to increase.

Zero carbon means all fossil fuel energy must be replaced by clean zero carbon energy- and it can be many times over.

Because of lags inherent in the Earth's climate, warming that occurs in response to a given increase in the concentration of carbon dioxide ("transient climate change") reflects only about half the eventual total warming. (National Research Council, GHG Stabilization Targets, 2011).

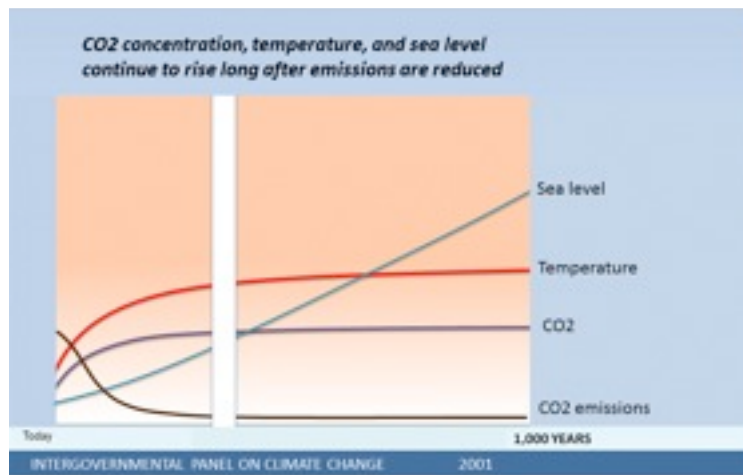


Image IPCC TAR WG1 SPM

Note that even at virtual zero CO₂ emissions the global temperature has not totally stabilized at 1000 years.

Ocean acidification (not shown in the image) will follow atmospheric CO₂ concentrations (its cause). As atmospheric CO₂ continues to increase (at a slower rate) as CO₂ emissions are reduced, the oceans are committed to more acidification that will last thousands of years.

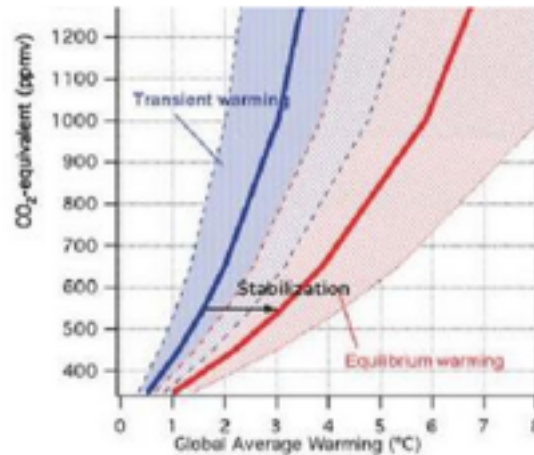


Image National Research Council Climate Stabilization Targets 2011

As shown by the NRC graph above at the time of atmospheric CO₂ stabilization global warming is 'transient' about half of the full eventual 'equilibrium' warming. There are other estimates in the IPCC AR5 TS but for catastrophic risk prevention we need to assume equilibrium warming is double the transient warming by 2100.

The science of zero carbon emissions for global temperature stabilization has been known many years, but it has only recently been that the same applies to ocean acidification (as well as ocean warming). Back in the 1990s it was realized that for atmospheric CO₂ to drop emissions would have to be cut almost to zero. Now we know that takes actual zero carbon emissions.

There is great support for the assumed success of carbon capture and storage to supposedly make burning fossil fuels and biomass zero carbon, but that is impossible. All the support does it provide an excuse for continuing to burn fossil fuels. In any case if fossil fuel subsidies were removed burning fossil fuels with CCS would be far too expensive (uneconomic), and the market investment switch would go to true clean renewables- certainly not burning with CCS.

This zero carbon science follows from the fact that 20-40% of CO₂ emissions last in the atmosphere for 1000 years (IPCC AR5 WG1).

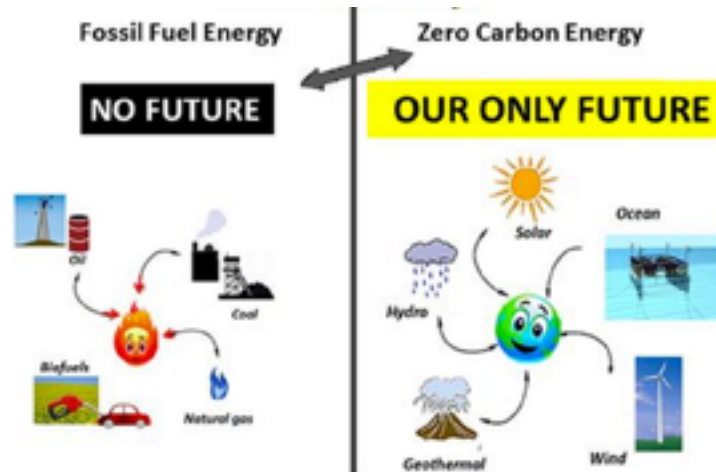
A lower carbon economy will not save us., because of this highly persistent and so cumulative nature of carbon dioxide emissions in the atmosphere

The makes the overriding climate change policy stopping all use of fossil fuels, totally replacing them by clean zero carbon energy.

For this to happen, obviously all fossil fuel subsidies have to stop.

Zero carbon = zero subsidies to fossil fuels

In fact, only in the case of essentially complete elimination of emissions can the atmospheric concentration of CO₂ ultimately be stabilized at a constant level.
(IPCC AR4 2007 WG1 FAQ 10.3.)



The energy market must switch so the direct subsidies have to be switched to renewables. Any delay in starting the momentous task of rebuilding the world for clean zero carbon everlasting energy makes it more unlikely that we will be able to do so in time to prevent planetary catastrophe.

For those who think it cannot be done please check the research by Mark Jacobson of Stanford. If you think rapidly rebuilding the world energy grid to replace fossil fuel energy with clean zero carbon energy is not feasible, please check the history of the past WW 2 Marshal Plan (Wikipedia).

Energy prices: only stopping and switching all subsidies can stop catastrophe

Planetary catastrophe is certain without zero carbon emissions.
That is why only a total stop and switching of world energy works.

That means charging corporations the full (externalized) cost of their pollution - that is a huge indirect subsidy.

The huge externalized costs making up the indirect fossil fuel subsidies must be stopped in order for coal to be rapidly replaced by clean energy.

For the cost of solar voltaic (which is falling) to become cost competitive to coal, the trillions of dollars in fossil fuel subsidies must be switched to clean energy.

That will lead to the coal plants being abandoned and allow rapid development of new state-of-the-art solar voltaic technologies, bringing down today's relatively high market costs (compared to coal) by a large amount.

