How Much CO2 Gets Emitted to Build a Wind Turbine?

(https://stopthesethings.com/wp-content/uploads/2014/08/turbine-base.jpg)

The ONLY justification for wind power – the massive subsidies upon which it entirely depends (see **our post here (https://stopthesethings.com/2014/07/30/nick-cater-the-mandatory-ret-the-greatest-rort-of-all-time/)**); spiralling power prices (see **our post here (https://stopthesethings.com/2014/04/23/want-skyrocketing-power-prices-just-add-wind-power/)**); and the suffering caused to neighbours by incessant low-frequency noise and infrasound (see **our post here (https://stopthesethings.com/2014/08/06/pac-hydros-cape-bridgewater-wind-farm-victims-vindicated/)**) – is the claim that it reduces CO2 emissions in the electricity sector.

STT has pointed out – just once or twice – that that claim is nothing more than a **central, endlessly repeated lie (https://stopthesethings.com/2014/08/07/the-wind-industry-is-based-on-a-central-endlessly-repeated-lie/)**.

Because wind power fails to deliver at all hundreds of times each year, 100% of its capacity has to be backed up 100% of the time by fossil fuel generation sources – which run constantly in the background to **balance the grid (https://stopthesethings.com/2014/05/27/wind-farms-nothing-more-than-power-grid-parasites/)** and prevent blackouts when wind power output collapses – as it does on a routine, but unpredictable, basis (see our posts **here (https://stopthesethings.com/2014/08/04/more-australian-wind-**

power-fails/) and **here (https://stopthesethings.com/2014/05/13/wind-power-myths-busted/)** and **here (https://stopthesethings.com/2014/06/11/south-australian-wind-power-fails/)** and **here (https://stopthesethings.com/2014/01/19/dont-say-we-didnt-warn-you/)** and **here (https://stopthesethings.com/2014/01/20/wind-power-the-joke-that-just-isnt-funny-anymore/)** and **here (https://stopthesethings.com/2013/05/26/the-great-oz-has-spoken-the-wind-will-no-longer-be-intermittent/)** and **here (https://stopthesethings.com/2013/09/18/the-gambler/)** and **here (https://stopthesethings.com/2014/01/28/herald-suns-terry-mccrann-the-climate-spectators-a-joke/)**). And for more recent woeful 'efforts':

The Wind Power Fraud (in pictures): Part 1 – the South Australian Wind Farm Fiasco (https://stopthesethings.com/2015/07/20/the-wind-power-fraud-in-pictures-part-1-the-south-australian-wind-farm-fiasco/)

The Wind Power Fraud (in pictures): Part 2 – The Whole Eastern Grid Debacle (https://stopthesethings.com/2015/07/21/the-wind-power-fraud-in-pictures-part-2-the-whole-eastern-grid-debacle/)

The mountains of dismal hard data tends to cut against the wilder claims emanating from the wind-worship-cult compounds that wind power 'displaces' – and will eventually 'replace' – conventional generation sources, but the 'threat' to BIG COAL, BIG GAS & BIG OIL is more imagined than real:

Why Coal Miners, Oil and Gas Producers Simply Love Wind Power (https://stopthesethings.com/2015/05/01/why-coal-miners-oil-and-gas-producers-simply-love-wind-power/)

Even before the blades start spinning – the average wind farm clocks up thousands of tonnes of CO2 emissions: "embedded" in thousands of tonnes of steel and concrete. So, every wind farm starts with its CO2 abatement ledger in the negative.

Here's Andy's Rant with a breakdown of just how much CO2 goes to build one of these things.

So what's the carbon foot print of a wind turbine with 45 tons of rebar & 481m3 of concrete?
Andy's Rant (http://www.andysrant.com/2014/08/so-whats-the-carbon-foot-print-of-a-wind-turbine-with-45-tons-of-rebar-481m3-of-concrete.html)
4 August 2014

Its carbon footprint is massive – try 241.85 tons of CO2.

Here's the breakdown of the CO2 numbers.

To create a 1,000 Kg of pig iron, you start with 1,800 Kg of iron ore, 900 Kg of coking coal 450 Kg of limestone. The blast furnace consumes 4,500 Kg of air. The temperature at the core of the blast furnace reaches nearly 1,600 degrees C (about 3,000 degrees F).

The pig iron is then transferred to the basic oxygen furnace to make steel.

1,350 Kg of CO2 is emitted per 1,000 Kg pig iron produced.

A further 1,460 Kg CO2 is emitted per 1,000 Kg of Steel produced so all up 2,810 Kg CO2 is emitted.

45 tons of rebar (steel) are required so that equals 126.45 tons of CO2 are emitted.

To create a 1,000 Kg of Portland cement, calcium carbonate (60%), silicon (20%), aluminium (10%), iron (10%) and very small amounts of other ingredients are heated in a large kiln to over 1,500 degrees C to convert the raw materials into clinker. The clinker is then interground with other ingredients to produce the final cement product. When cement is mixed with water, sand and gravel forms the rock-like mass know as concrete.

An average of 927 Kg of CO2 is emitted per 1,000 Kg of Portland cement. On average, concrete has 10% cement, with the balance being gravel (41%), sand (25%), water (18%) and air (6%). One cubic metre of concrete weighs approx. 2,400 Kg so approx. 240 Kg of CO2 is emitted for every cubic metre.

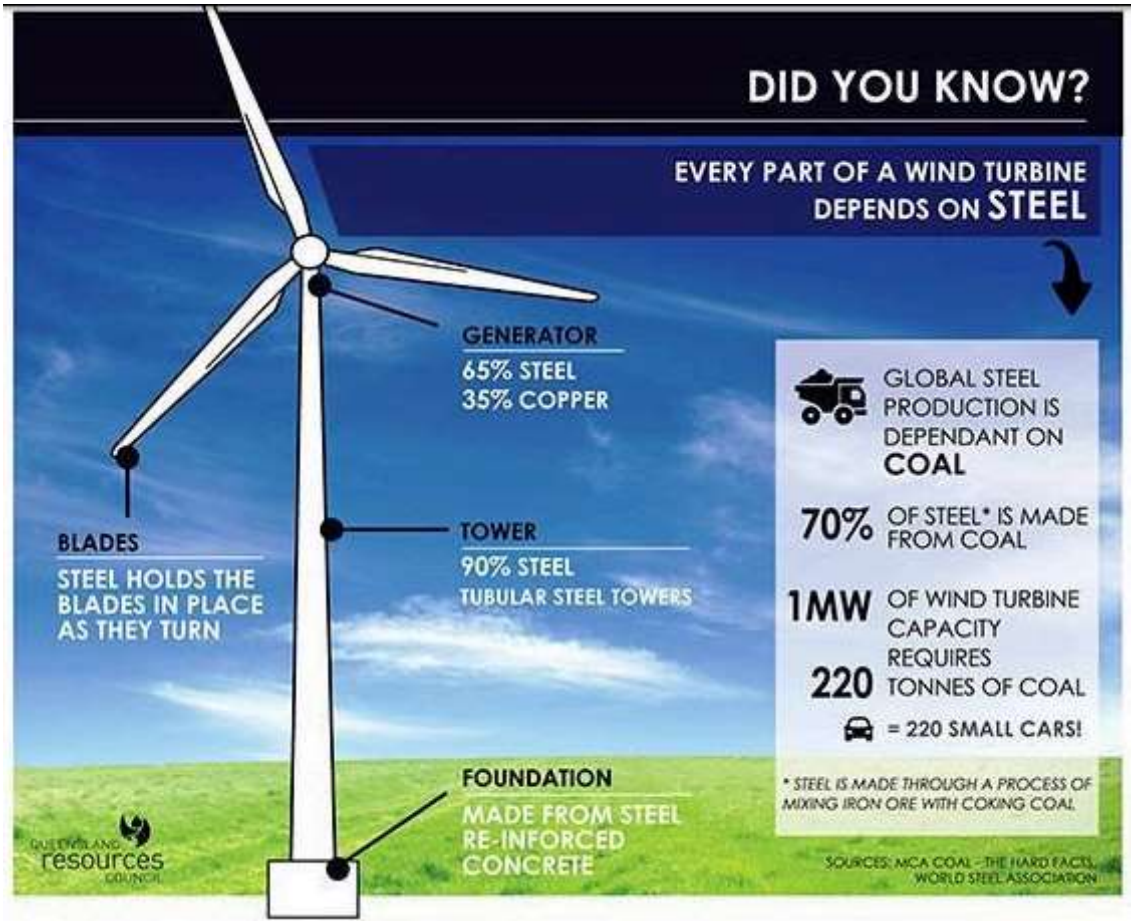
481m3 of concrete are required so that equals 115.4 tons of CO2 are emitted.

Now I have not included the emissions of the mining of the raw materials or the transportation of the fabricated materials to the turbine site so the emission calculation above would be on the low end at best.

Extra stats about wind turbines you may not know about:

The average towering wind turbine being installed around beautiful Australia right now is over 80 metres in height (nearly the same height as the pylons on the Sydney Harbour Bridge). The rotor assembly for one turbine – that's the blades and hub – weighs over 22,000 Kg and the nacelle, which contains the generator components, weighs over 52,000 Kg.

All this stands on a concrete base constructed from 45,000 Kg of reinforcing rebar which also contains over 481 cubic metres of concrete (that's over 481,000 litres of concrete – about 20% of the volume of an Olympic swimming pool).



(https://stopthesethings.com/wp-content/uploads/2014/08/steel-in-turbine.png)

Each turbine blade is made of glass fibre reinforced plastics, (GRP), i.e. glass fibre reinforced polyester or epoxy and on average each turbine blade weighs around 7,000 Kg each.

Each turbine has three blades so there's 21,000 Kgs of GRP and each blade can be as long as 50 metres.

A typical wind farm of 20 turbines can extend over 101 hectares of land (1.01 Km2).

Each and every wind turbine has a magnet made of a metal called neodymium. There are 2,500 Kg of it in each of the behemoths that have just gone up around Australia.

The mining and refining of **neodymium is so dirty and toxic (http://www.dailymail.co.uk/home/moslive/article-1350811/In-China-true-cost-Britains-clean-green-wind-power-experiment-Pollution-disastrous-scale.html)** – involving repeated boiling in acid, with radioactive thorium as a waste product – that only one country does it – China. (See our posts **here (https://stopthesethings.com/2013/11/08/wind-power-the-poisoned-chalice/)** and **here (https://stopthesethings.com/2013/12/20/who-put-the-clean-in-clean-energy-council/)**).

All this for an intermittent highly unreliable energy source.

And I haven't even considered the manufacture of the thousands of pylons and tens of thousands of kilometres of transmission wire needed to get the power to the grid. And what about the land space needed to house thousands of these bird chomping death machines?

You see, renewables like **wind turbines (http://www.andysrant.com/2011/10/china-to-waste-19-trillion-wind-power-set-for-full-blown-growth.html)** will incur far more carbon dioxide emissions in their manufacture and installation than what their operational life will ever save.

Maybe it's just me, but doesn't the "cure" of using wind turbines sound worse than the problem? A bit like amputating your leg to "cure" your in-growing toe nail?

Metal emission stats from page 25 from the 2006 IPCC **Chapter 4 Metal Industry Emissions report (http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/3_Volume3/V3_4_Ch4_Metal_Industry.pdf)**.

Cement and concrete stats from page 6 & 7 from the 2012 **NRMCA Concrete CO2 Fact Sheet (http://www.nrmca.org/sustainability/CONCRETE%20CO2%20FACT%20SHEET%20FEB%202012.pdf)**.
Andy's Rant

(https://stopthesethings.com/wp-content/uploads/2013/09/light-in-darkness-e1398319261219.jpg)

Sometimes, the wick just ain't worth the candle.

Posted on **August 16, 2014June 1, 2024**

102 thoughts on "How Much CO2 Gets Emitted to Build a Wind Turbine?"

1. **TOG SAYS:**
   July 1, 2023 at 9:23 pm
   Reblogged this on **sideshowtog**.

↳ **Reply**

2. **ED SAYS:**
   October 15, 2022 at 7:58 am
   Need to get the emissions to install one windmill and getting the ingredients to build the components.
   And don't forget the grave yards of blades that fail in a short time that they are struggling to dispose of them.

   ↳ **Reply**

3. **LES ROGERS SAYS:**
   July 31, 2022 at 7:47 pm
   How much co2 is produced in making a wind turbine from the first bucket of iron ore that makes the steel for the excavator, trucks and boats and trains let alone the power to make the steel, cement, stones and sand to make the concrete or the petroleum for the resin. Let alone the used to make its components and diesel getting it there. The list keeps on going?

   ↳ **Reply**

4. **AVIARYG SAYS:**
   August 12, 2021 at 12:18 pm
   I saw six semis transporting wind generator components for what seemed to be one single wind generator on the highway on one road trip. No idea how far they had to travel. I've driven by cranes lifting up blades and a small army of heavy machinery (which had to be transported on semis) and workers who drove to the worksite every day. Would love to see an analysis on the impact all of that had on the CO2 emission reduction of that one limited lifetime generator.

   ↳ **Reply**

5. **MICHAEL FOGARTY SAYS:**
   July 15, 2021 at 7:40 am
   Just curious as to whether the calculation includes the front-end Co2 generating components such as the primary Resource Mining activities. (This question may already be here but I just did not have time to read ALL of the posts)
   For example, to expose 1Ton of high-grade Iron ore the stripping ratio is 5:1, on average. The amount of Diesel Fuel required is?
   Then rail it to the Port…Diesel Fuel required?
   Ship to the point of Steel Production …Fuel required
   The same would apply to the other metal components (Copper, Aluminium etc)
   Then there are the composite materials, extraction (Generally from Hydrocarbons), production
   The Analysis should also consider the associated recycling costs

   ↳ **Reply**

6. **SJC SAYS:**
   June 7, 2021 at 3:38 pm
   I am curious to see a comparison CO2 impact of the construction and maintenance of a coal and natural gas producing plant. I bet it dwarfs the impact of wind turbines and solar panels.

   ↳ **Reply**

   STOPTHESETHINGS SAYS:
   June 7, 2021 at 5:48 pm

What's the basis for the comparison? Coal and gas deliver power 24 × 365, irrespective of the weather or time of day. And, for every MW of wind or solar there has to be a MW of coal or gas capacity ready to match the load in an instant when the wind drops or the sunsets. Moreover, it's only wind and solar generators who make bogus claims about their true co2 emissions. Coal and gas generators don't claim to not emit co2.

↳ **Reply**

7. **GLEN SAYS:**
   December 26, 2020 at 2:47 pm
   If batteries are used, what of the land destroyed in mining the lithium and loss of natural carbon sequestration. And land so alienated by roadways and use limitation, that food and fibre supplies are reduced. Who measures all this

   ↳ **Reply**
8. **LAUREN SAYS:**
   December 17, 2019 at 1:48 am
   Reblogged this on **Lauren Creech's Random Thoughts**.

   ↳ **Reply**
9. **P J CAVE SAYS:**
   October 5, 2019 at 7:10 pm
   Never heard of SF6 green house gas until last month!!.
   The drive to use mixed sources of power, including wind, solar
   and gas, rather than coal as fuel has resulted in a rise in the
   number of electrical devices that use SF6, the BBC said.
   AT – **https://www.telegraph.co.uk/news/2019/09/13/worlds-powerful-greenhouse-gas-rise-due-green-energy-boom/**

   ↳ **Reply**
   1. **YVE SAYS:**
      April 29, 2020 at 3:43 pm
      Hi, thanks for these facts. I would like to see a direct comparison of the total lifetime co2 cost of a wind turbine vs coal or natural gas.
      Thanks

      ↳ **Reply**
      1. **DOMINIQUWE SAYS:**
         April 29, 2020 at 10:59 pm
         'xactly my question. Of course bulding an oil or coal power station consumes no resources at all, only thin air.

         STOPTHESETHINGS SAYS:
         April 30, 2020 at 5:34 am
         Wrong question. No one claims a coal fired plant does not produce CO2, whether in terms of construction or while generating power. So the premise you raise is a nonsense.

         A coal fired plant generates 2 things that concern you: CO2 and meaningful power available 24 × 7, whatever the weather.

The wind industry promotes wind power as CO2 free. That is a lie. And wind turbines cannot and will never deliver meaningful power. So there is no comparison.

For every MW of wind capacity there must be a MW of capacity from dispatchable sources, which means coal, gas, nuclear or hydro.

Accordingly, wind power is an expensive and pointless vanity exercise.

2. **CHRIS EDWARDS SAYS:**
   April 30, 2020 at 3:43 am
   When you subtract parasitic loads and spinning reserve energy costs, wind produces almost zero power, so it is utterly hopeless! Germany has upped its CO2 footprint despite a shrinking economy! Yet under Mr Trump the USA reduced theirs and grew the economy.

10. **ENDLESS NAMELESS SAYS:**
    August 16, 2019 at 9:55 pm
    Surely traditional power stations start with a negative carbon footprint too?

    ↳ **Reply**

    STOPTHESETHINGS SAYS:
    August 17, 2019 at 8:10 am
    So what? Wind power proponents make wild claims about its CO2 emissions. Coal and gas generators don't.

    ↳ **Reply**

1. **BRUCE SAYS:**
   August 20, 2019 at 12:55 pm
   Yes, but the wind turbines are sold as the saviors of the earth because they produce "no" CO2.

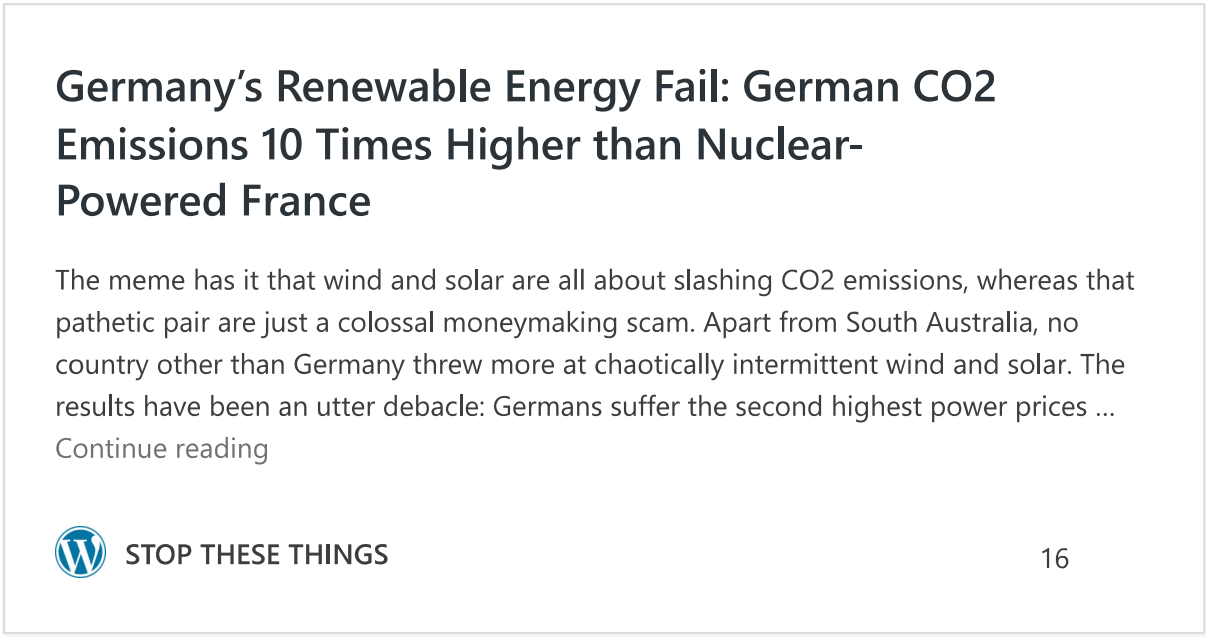
   ↳ **Reply**

11. **STEVE HAGEN SAYS:**
    July 25, 2019 at 11:55 pm
    I am reposting as I forgot to click to get follow up on comments.

    So is there any agreement on payback time in terms of CO2?
    I have seen as little as ten hours which has to be wrong and NEVER!!!

    ↳ **Reply**

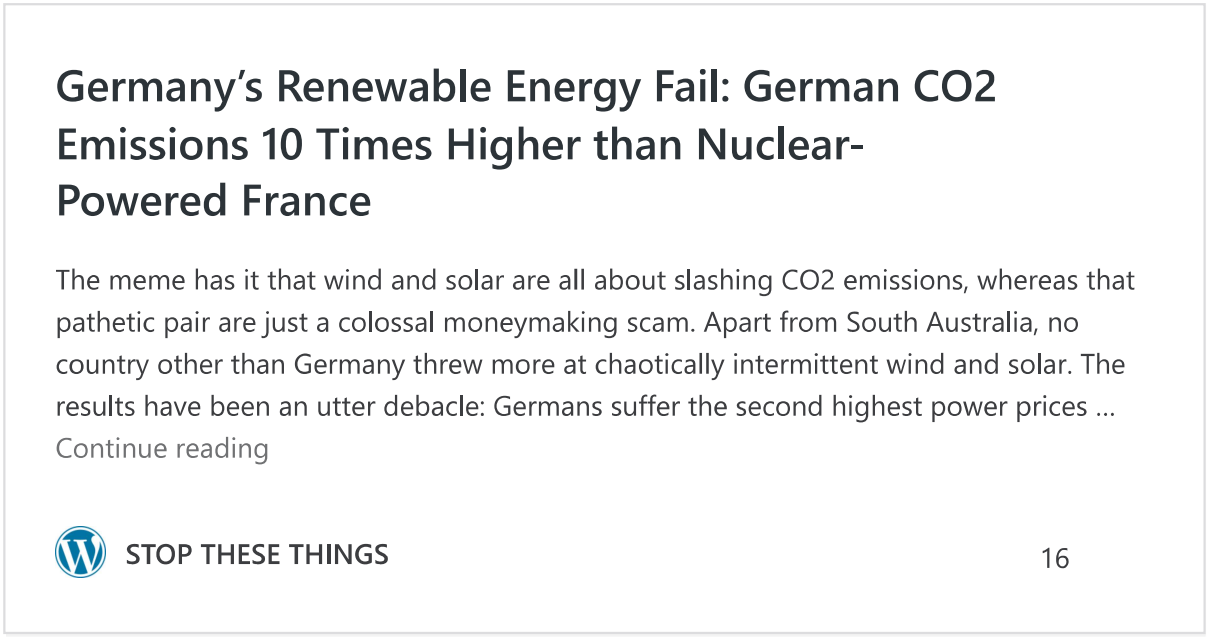
    STOPTHESETHINGS SAYS:
    July 26, 2019 at 6:09 am
    Proof is in the pudding. Germany has added 30,000 wind turbines and millions of solar panels to a coal fired grid and its carbon dioxide gas emissions continue to rise and are magnitudes higher than its nuclear powered neighbour.



↳ **Reply**

1. **YVE SAYS:**
   May 3, 2020 at 5:05 am
   I see this argument about Germany's co2 footprint increasing. Is there a reliable source for this fact? I never see it cited anywhere.

   STOPTHESETHINGS SAYS:
   May 3, 2020 at 10:06 am
   Hardly something the MSM are going to trumpet. Try the sources included in these posts.



2. **ROD SAYS:**
   November 1, 2020 at 2:58 pm
   So true, they leave out co2 in manufacturing them, and disposal of them in 5 to 10 years

1. **BRUCE STEWART SAYS:**
   August 7, 2019 at 1:11 pm
   The suffering of neighbors is very real. A couple I know used a big part of their retirement to buy some acreage in the country. After doing a complete remodel on the old farm house the wealthy neighbor with thousands of acres sold out to the wind farm corporation. Now all night they have flashing red light in the front rooms and early every morning there is a terrible strobe effect from the blades cutting through the sunlight. They are sick and helpless now and the rich neighbor says tough break.

   ↳ **Reply**

   1. **GEOH777 SAYS:**
      January 21, 2020 at 12:26 pm
      The couple should reboot their place as a "wind farm tour B&B" and let their clients enjoy their love for wind energy and ALL of its benefits.

2. **YVE SAYS:**
   May 3, 2020 at 5:13 am
   I see this argument about Germany's co2 footprint increasing. Is there a reliable source for this fact? I never see it cited anywhere.

   ↳ **Reply**

   1. **MARK SAYS:**
      July 1, 2020 at 2:49 pm
      Just read about new lignite power plants in Germany. Lignite powerplant with only 28% efficiency is the worst power plant possible. Just look for publications like this;
      https://foreignpolicy.com/2017/11/13/germany-is-a-coal-burning-gas-guzzling-climate-change-hypocrite/
      And please don't forget about German diesel fraud.

2. **HARRY JASON SAYS:**
   October 8, 2023 at 3:55 pm
   People don't get that intermittency of energy production by wind and solar is a huge problem for electrical grids that need to be 100% operational 24/7.

   One of the reasons that Germany increased their CO2 (and pollutants) emissions is the fact that their reserved lignite powered plants had to restart and shut down when the intermittency "green energy" hit the grid.

   The big problem with this is that these lignite plants are designed to operate on maximum efficiency when they are operating 24/7.

   Their most polluting phases are when they warm up on start up and (if I recall well) when they shutdown.

   Flipping the switch of those plants on and off, makes them polluting a lot more than if they'd kept them continuously operating.

   Wind and solar is responsible for that need (and the central planners that enforced this conundrum with grand scale "green" stupidity).

12. **STEVE HAGEN SAYS:**
    July 25, 2019 at 10:38 pm
    So they produce more co2 than they will ever save. I understand, but ever??? There must be a breakeven time. How long on average? 30 years? 40? Would not either of those times fit into the time frame of global warming reduction? Steve in Atlanta and I get 50% of my electric from some wind farm in Ohio. **Stevenmia@aol.com**

    ↳ **Reply**

    1. **GARY MYORS SAYS:**
       August 12, 2019 at 10:54 am
       The lifespan of the average turbine is 20 to 25 years. While new wind farms are going up, America's first generation of wind farms are reaching retirement age, like the Xcel Energy's Ponnequin Wind Farm on the border of Colorado and Wyoming. The farm of 44 turbines recently retired at the average age of 18 years old. In October of 2016, Xcel Energy plans to dynamite the turbines and cart off the waste to a landfill. Don't forget the coolant in the turbine is oil and cannot got into landfill.

       ↳ **Reply**

    2. **CATCRACKING SAYS:**
       December 26, 2019 at 11:28 pm
       Steve,
       Look at it this way. Since the equipment lasts only 20 years on average, why has our government not published a report with information that clearly provides the fossil fuels required to make, install and maintain these wind turbines and the total CO2 Emissions before they produce 1 watt of energy.
       If it were pretty it would be on the NEWS EVERY NIGHT for us to see!
       Also I have never seen a government that tries to put an essential enterprise out of business by regulations and subsidies to windmills solar cells and data adjustments.

       ↳ **Reply**

1. **JUST A NOBODY SAYS:**
   December 28, 2019 at 7:25 am
   Check out SF6. The gas used to stop these things exploding! Ignorance is bliss!

2. **HARRY JASON SAYS:**
   October 8, 2023 at 4:01 pm
   You can deduct their production emissions by looking at their EROEI figures which are horrendously low. EROEI = Energy Returned on Energy Invested. Wind and solar are hovering around 1 and 5 EROEI which is extremely low. It means that for every unit of energy invested in those systems you get back between 1 (!!! – worst case scenario) and 5 times your energy invested into the system.

   For comparison, fossil fuels are between 20 and 40 EROEI and nuclear around 100!

   This "green" agenda doesn't make sense anyway you look at it.
3. **HUGH JONES SAYS:**
   May 17, 2022 at 6:57 pm
   Why all this need to control CO2, even when we already know it's a minor player, why not control the biggest contributor to climate, Water Vapour, which is anything from 40% to 70% and the very gas that climate models fail to predict. Why do these guesswork climate models always predict in one way only, the way of doom and gloom and inefficient energy sources, like wind turbines and solar panels. Why reduce CO2 which is as essential as Oxygen for life to exist, reduce a gas that has been reducing itself for 500, 000 years, 150ppm and all life starts to die, from grass to trees, and yes we are putting some of the sequestered CO2 back into the atmosphere, but overall, it's constantly being absorbed by the oceans, vegetation, and rocks, without CO2 in the atmosphere the planet would cool to freezing (-18C) and all plant life would cease to exist and all this nonsense we are talking about here would be pointless and a mute topic. The real reason we have a CO2 problem is money, go ask Al Gore, the guy who made it political and put $500,000,000, in his personal bank account, and has the biggest carbon footprint in America, and now you don't hear about him, sitting back and having a laugh, like all those hypocritical celebrities living their high lives telling us to do without and just watch them enjoying theirs. CO2, like Covid and Mask Mandates and Lockdowns, are all political and man made, for fear and control of populations and all those protesters are your classmates who pissed their education against the wall and now live off your taxes, in the form of benefits, how else can they protest five days a week on the streets being disruptive and anarchic, these people would not a CO2 molecule if it his them in the backside. Next time you see a protest, look for the paid agitators going around and stirring them up and see how it all works.

   ↳ **Reply**
13. **UWE.ROLAND.GROSS SAYS:**
    June 25, 2019 at 1:49 am
    Reblogged this on **Climate- Science**.

    ↳ **Reply**
14. **MARK SAYS:**
    April 1, 2019 at 6:02 am
    Excellent article. Thank you

    ↳ **Reply**

15. **STEVE HAGEN SAYS:**
    February 28, 2019 at 11:27 pm
    My eyes glazed over but I get it…
    What is the breakeven time needed to when wind generators actually do good?

    ↳ **Reply**

    STOPTHESETHINGS SAYS:
    March 1, 2019 at 6:02 am
    Kingdom Come.

    ↳ **Reply**
16. **CHRIS SAYS:**
    February 28, 2019 at 3:03 pm
    Actually its even worse! bear with me here! the spinning back up uses energy when the turbines are in wind anyway as there is no option, so that 1 megawatt turbine, when generating has a megawatt of conventional generation just spinning. to get an honest annual output of that turbine we must subtract what that wasted back up energy could have produced, anything over that is the power benifit to the grid, the answer is dismally small.

    ↳ **Reply**
17. **KAYKISER SAYS:**
    July 14, 2018 at 6:29 am
    Reblogged this on **Science is distorted by progressive philosophy**.

    ↳ **Reply**
18. **CRISPIN SAYS:**
    June 7, 2018 at 6:14 pm
    The climate changers are telling us that there will be more and more freak weather events in future. Well if this is the case, why on earth would you build a weather dependant energy generation system? It makes no sense. If anything the focus should be on non weather dependant energy systems for grid stability.

    Personally, I have not made up my mind about man made climate change. The local weather forecaster has stated to me that the weather has not changed in the last 20 to 30 years at Cape Bridgewater. However when I used to live in Brisbane, I did notice how clouds of smog would hang over the city during the morning rush hour. This cannot be healthy, and is an example of the sort of areas we should be tackling instead of destroying our once affordable and reliable electricity system.

    As for climate change, I was impressed by the recent program in which Sir David Attenborough walked and talked with Her Majesty, Queen Elizabeth II, about the importance of trees. In fact it is the first program I have watched with Sir David Attenborough in it ever since he first came out as a climate changer. Here is a practical thing we can do by adopting a precautionary approach against climate change. And it doesn't have to destroy our energy grid.

    I feel that former PM Tony Abbott should be given credit for setting up the Green Army in an effort to do just that. Plant trees.

    http://conservationvolunteers.com.au/green-army/

    And what does PM Turnbull do?

Shut it down!

It will close June 30th.

I think that this is a mistake. Not a smart move when the Royal family are promoting the Queen's Commonwealth Canopy project on the other side of the planet.

https://queenscommonwealthcanopy.org/

↳ **Reply**

19. **RANDY KUHN SAYS:**
June 5, 2018 at 12:33 pm
Like…… China is trying to stop the mining of this magnetic material.. they have a lot of health defects from their water source… Everyone is getting white hair and way worse effects ….. Check it out..

↳ **Reply**

20. **ANTHONY G WARREN SAYS:**
April 13, 2018 at 4:36 am
You really need to look at the carbon footprint of the composite materials used, and the mining and refining of the various alloys too.

Making fiberglass requires a continuous heat source to melt the sand into glass and then to force the glass through the platinum spinnerets. A small plant will have a 10 inch natural gas line firing 24/7 continuously.

The production of the tonnes of epoxy resins is not carbon neutral either.

↳ **Reply**

21. **MIKE SAYS:**
February 10, 2018 at 8:49 pm
You have missed out the unknown effect of noise and vibration pollution to sea life

↳ **Reply**

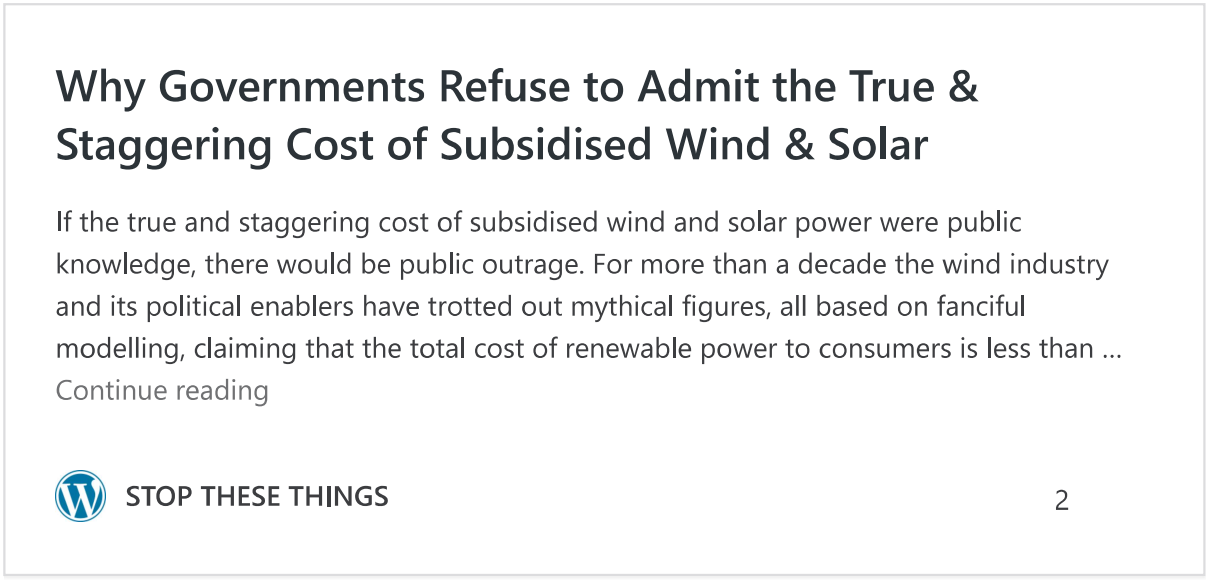
STOPTHESETHINGS SAYS:
February 10, 2018 at 9:01 pm
Search our site and you'll find dozens and dozens of posts on both topics.

↳ **Reply**

22. **CHRIS EDWARDS SAYS:**
October 10, 2017 at 2:30 am
And now factor in the back up generation and they become utter folly

↳ **Reply**

STOPTHESETHINGS SAYS:
October 10, 2017 at 5:44 am
You can find those numbers here:



↳ **Reply**

23. **KELVINSDEMON SAYS:**
September 22, 2017 at 12:43 pm
One teensy objection: the neodymium extraction is far far more obnoxious than the radioactivity of the thorium associated with it.
Just as, whether we believe Al Gore (or better, James Hansen) or not, the fact that the fly ash from coal burning carries more radioactivity that a comparable nuke plant is permitted to emit, is a mere trifle compared with the poisonous gas emissions from sulfur, nitrogen, and even the neurotoxic mercury.
In a world properly educated about nuclear energy, thorium will be considered extremely valuable. It can be converted by thermal neutrons in a molten salt breeder reactor, to 233_U, uranium 233 which is slightly better than the rare natural 235_U for fission purposes, because even when it captures a neutron without splitting, the 234_ with another neutron capture gives us the 235 isotope.

↳ **Reply**

1. **JUSTANOBODY SAYS:**
December 8, 2019 at 6:30 am
Wow that's a bit deep for me, but thank you for mentioning fly ash in your statement. Since the demise of coal burning for power generation in the UK we now have a massive shortage of fly ash for building materials, house building, road building etc. The UK is now IMPORTING fly ash from Europe to fill this void. Shipping, transport and mining producing huge amounts of Co2 that should be included in the "Wind turbine" calculation! Tree farms, not Wind farms makes more sense to me.

↳ **Reply**

24. **HULIO SAYS:**
July 1, 2017 at 9:48 am
Be good if you had included a total expected lifetime electrical output calc in the same detail as the other calcs to highlight your main point here. You just glossed over it, and it weakens the credibility of the other good stats.

↳ **Reply**

STOPTHESETHINGS SAYS:
July 1, 2017 at 10:03 am
Thanks Hulio from renewables financier, Bloomberg, for your suggestion that we glossed over some fact you say is worth comparing.

But compared to what? The conventional generation that exists and which must always exist to ensure power is delivered according to demand and not the weather?

The existing system delivers power 24 x 365, so please explain what you want us to compare?

A system abandoned Centuries ago, with the system that rendered it pointless through our ability to harness thermal energy at will? Or some other system?

There is no comparison and only intellectual lightweights assert that there is: eg the rubbish about wind power being cheaper than coal. When the wind stops blowing or exceeds 25m/s wind power can't be bought at any price:

> **Wind Industry Says It's Time to Cut the Subsidies: 'Wind Power Cheaper than Coal'**
>
> STT loves an eye-catching headline. Today's is, on one level, the kind of spoof headline dished out by Washington pranksters, The Onion: so outrageous, that no sentient being could accept the premise. However, half of our headline is quite literally true: the wind industry has been putting out figures claiming that it is not only ... Continue reading
>
> STOP THESE THINGS 10

STT is happy to make meaningful comparisons, but not ones based on complete nonsense.

↳ **Reply**

1. **DAVE SAYS:**
   July 23, 2017 at 9:16 am
   How much electricity will the farm produce and how much carbon would a fossil fuel plant emit for the same amount vs it's carbon footprint.
   I
   Am curious about the cost to build, wind, solar and natural gas plants, their output and carbon emissions. There are very few honest, total comparisons, thanks for this article.

   I

   STOPTHESETHINGS SAYS:
   July 23, 2017 at 3:11 pm
   Dave, thanks for your comment. You refer to carbon, but we assume you mean CO2 gas. Wind power can't be compared with conventional generators because they operate on demand whereas wind power is only available at the whim of the weather. Coal fired plants and CCGT

burn fuel around the clock, when the wind blows they are knocked out of the market by subsidies to wind power but continue to burn fuel. That has to occur because wind power output varies so wildly dispatchable power must be always available to prevent total grid collapses as happened in South Australia last September. Have a look at our post from yesterday.

2. **PHIL SAYS:**
   March 9, 2018 at 1:15 pm
   Hey, I am completely on your side on this subject but I think you are being a teensy bit defensive about the request for more detail. I think they wanted more detail calcs to support your assertion that the fabrication and construction of these behemoths generate more CO2 than they could ever save over their operating lifetime. I suspect you are right (I have heard this statement before). Some calves about how much CO2 is saved (compared to fossil fuel – Say coal) generation over a 15 year life would be helpful.
   Respectfully your's.

1. **RANDY KUHN SAYS:**
   June 5, 2018 at 12:34 pm
   You have the stats?

   ↳ **Reply**

2. **ALOSTINSIGHT SAYS:**
   July 24, 2019 at 3:27 pm
   In just after 10.7 hours of operation, a wind turbine will save on CO2 emission as compared to Coal-fired thermal power plant.

   Let me help you here. Thanks, @stopthesethings for having a wonderful presentation on how much carbon wind turbine is going to produce. Let's say you are right (i believe you are) that a wind turbine manufacturing produces 241.85 ton of CO2. Now consider this.

   A coal-fired plant will produce 0.94kgCO2eq/kWh. [1]
   To release 241.85 ton CO2, it will have to generate:

   241.85*1000/0.94
   =257287.234 kWh (units) of electricity

   to your surprise my dear friend,
   that number is surpassed by a 1MW wind turbine in just 10.7 hours.

   I'm trying very hard to support you. So let us ignore CO2 emitted in erecting a coal burned plant. Let us say that we have super-efficient plants that release only 0.47kgCO2eq/kWh of electricity. but still, running wind turbine for more than a day will surpass your argument.

   ↳ **Reply**

   STOPTHESETHINGS SAYS:
   July 24, 2019 at 5:41 pm
   How wrong you are, you assume a wind turbine produces power as a perfect substitute for coal fired power, which is nonsense. For the unpredictable 25 to 35% of the time a wind turbine is dispatching power to the grid, coal fired and gas fired plants are running, burning fuel and ready to dispatch the instant the wind drops. This is called spinning reserve. Plants

are ramped up and down, running inefficiently as a result and CO2 emissions increase across the power generation sector as a result. Wind power cannot replace conventional generation and does not reduce CO2 emissions, the only system that does so is nuclear.

1. **CEDRIC LYNCH SAYS:**
   July 25, 2019 at 5:24 am
   There is a blooper in the calculation. 257287 KILOwatt-hours is 257 and a bit MEGAwatt-hours. A 1 megawatt wind turbine obviously must take at least 257 hours to generate this with ideal wind conditions. The wind turbine will not repay its carbon footprint in 10.7 hours; it will take several weeks.

2. **ALOSTINSIGHT SAYS:**
   July 25, 2019 at 6:52 pm
   Sorry Cedric there was a typo. You are right. It will be 10.7 DAYS. Which is around 0.15% of the life of turbine. (considering 20 years life. usually it is 25 years). Thanks.

   STOPTHESETHINGS SAYS:
   July 25, 2019 at 7:06 pm
   You're still wrong for the reasons expressed in our reply.

3. **ALOSTINSIGHT SAYS:**
   July 25, 2019 at 6:48 pm
   (typo) Sorry I mean 10.7 Days and not 10.7 Hours*

25. **LEE SAYS:**
    June 2, 2017 at 8:03 pm
    Super excited?? To read this. Have long wondered about the what the real cost of manufacture of turbines v their actual output …

    ↳ **Reply**

26. **STEVE IN ATLANTA...FORMERLY FROM KALAMAZOO SAYS:**
    April 27, 2017 at 11:11 am
    Great research…..I signed up to get 50% of my electric from Arcadia with wind farms and solar panels but now wonder why……..I had no idea SO MUCH concrete and steel was under the base of these things….

    ↳ **Reply**

27. **NANDO SAYS:**
    January 17, 2017 at 11:53 am
    I love it. I knew some of the basic information, but I never bothered to put all together. I am disappointed that this kind of readily available evidence is not presented to the politicians, from all spectrums, and shoved in front of their faces. Wake-up people!

    ↳ **Reply**

28. **JOHN SMITH SAYS:**
    September 13, 2016 at 6:49 am
    I don't like windmills either. I also don't believe the hyped narrative that CO2 is causing "climate change". I don't believe it is harming anything. The evidence is just not there. It's based on a mob mentality driven by agenda pushing activists scientists and politicians. It's fear mongering preying on the intellectually lazy.

↳ **Reply**

1. **KEITH PARSONS SAYS:**
   October 13, 2016 at 5:23 pm
   I agree

   ↳ **Reply**
2. **SLICK SAYS:**
   February 16, 2019 at 4:00 pm
   Band wagons are easy to jump on. Doing your own research/math and getting it right this hard. we must not forget the human labor and travel required to install and maintain one of these as well. This carbon footprint is all too often overlooked.

   ↳ **Reply**

29. **KEV SAYS:**
    September 2, 2016 at 3:08 pm
    Great article. I have one idea that might help assess the carbon footprint of these things when there are all the peripheral things to include like niobium mining and wind vane fabrication etc.
    I suggest you just get the final cost in dollars and convert it to its equivalent fossil fuel amount. Perhaps weighted between coal and oil in some proportion. The fact is that energy is the only thing consumed in any operation and that is what determined the price. So if you wonder for example how much energy goes into mining and producing niobium magnets or fibreglass panels just get the cost. When wind mills can run without a dollar subsidy I will believe they can run without an energy subsidy, until then they are a blight.

    ↳ **Reply**
30. **8JAMES38 SAYS:**
    July 5, 2016 at 7:18 pm
    You have an interesting and important site, but to be optimally effective, I suggest that you clarify a few things.
    First, from your article:

    "The mining and refining of neodymium is so dirty and toxic – involving repeated boiling in acid, with radioactive thorium as a waste product – that only one country does it – China. (See our posts here and here)."

    Calling Thorium a radioactive waste product is very far from the truth. In the first place, Thorium is hardly radioactive at all. It is not fissile, but is fertile, meaning that it cannot sustain a chain reaction, but under sufficient neutron bombardment in a reactor, can be converted into a fissile fuel.

    Therefore, Thorium is not a waste product, but is fuel for a very safe type of reactor, and should be treated as a valuable co-product, not waste. The MSR (Molten Salt Reactor) was built and tested for 20,000 hours at Oak Ridge in the 1960's (see MSRE – Molten Salt Reactor Experiment).

    The MSR/LFTR (Liquid Fluoride Thorium Reactor) is a totally fail-safe reactor that cannot melt down (the fuel is already a molten salt), needs no giant containment structure since it has no water in the reactor, and is about half as expensive to construct as a "conventional" PWR (Pressurized Water Reactor). The MSR/LFTR can also use present stockpiles of Nuclear Waste as fuel, solving the storage problem and giving us power for hundreds of years. Your additional articles referenced in the above quote are eloquent about irresponsible mining pollution, but add nothing accurate about Thorium.

Second, from the article:

"And I haven't even considered the manufacture of the thousands of pylons and tens of thousands of kilometres of transmission wire needed to get the power to the grid. And what about the land space needed to house thousands of these bird chomping death machines?"

It is not a good idea to give the Wind/Solar industries a pass on any significant source of pollution. The CO2 footprint and the cost of transmission lines are very significant, and should be estimated and included in your conclusions – in all of your articles.

You will find some very detailed and important support for your position in the following critique of the plan proposed by Professor Richardson of Stanford – to power the entire US with nothing but Wind/Solar plus other "renewables":

"Analysis and critique of the 100% WWS Plan
advanced by The Solutions Project"

http://www.timothymaloney.net/www.timothymaloney.net/Critique_of_100_WWS_Plan.html

OR: **http://tinyurl.com/gov9mtg**

Timothy Maloney's site also has very important information on MSR/LFTR, and articles discussing several important related issues.

↳ **Reply**

1. **DRYSCOTTDALEGMAILCOM SAYS:**
   August 14, 2016 at 3:56 am
   Excellent information of thorium……sadly countries and news medias are run by Luddites, not those strong in the pure sciences….. and now we have entire University science faculties that are bogus….. just not real science…..yet!

   ↳ **Reply**
2. **BRUCE SAYS:**
   June 23, 2019 at 4:46 am
   Who is resisting the development of Molten Salt Reactors? They as you point out are "walk away safe". There is a plug at the bottom of the reactor that will melt if something goes wrong and dump the contents into a holding pit.The radioactive isotopes produced are needed for nuclear medicine. Unfortunately it doesn't fit the image of "Green" that some dreamers have.

   ↳ **Reply**
3. **JN SAYS:**
   August 10, 2019 at 10:10 am
   8james38, Beware that Monazite, the main source for Neodymium (Bastnäsite its also an important source), does not have only Thorium in the Cristal structure. Thorium exists in its structure in the same isotopic equilibrium as its stated in the periodic table. So it's marginally radioactive but it's indeed radioactive, producing discernible alpha emissions, not for being fissile but for natural decay. The problem is that a considerable amount of Uranium is also produced in the neodymium concentration process, and this one as a complex decay series with some intermediate isotopes being highly radioactive. However, even if we ignore the radioactive waste produced in the process, we can always account for the acid waste. More or less 75 cubic meters of acidic waste is produced for each ton of concentrated neodymium.

↳ **Reply**

31. **PAUL SAYS:**
January 8, 2016 at 5:53 pm
Stopthesethings: GREAT article. I was in NZ some time ago, and had a look at the wind farm at Raglan. It cost twice as much and produced one quarter of the electrical power as the A1B nuclear reactor used in the latest US Aircraft Carrier.

↳ **Reply**

1. **BRUCE SAYS:**
June 23, 2019 at 4:49 am
The wind farm is all about "saving the environment" but how is killing birds and especially bats, heating the earth and air behind the turbine and all the roads and transmission lines across a continent "saving" the environment? Not to mention the net gain in CO2.

↳ **Reply**

32. **4TIMESAYEAR SAYS:**
December 7, 2015 at 3:12 pm
Reblogged this on **4timesayear's Blog**.

↳ **Reply**

33. **CLIMATISM SAYS:**
December 6, 2015 at 11:53 pm
Reblogged this on **Climatism** and commented:
With a lifespan of only fifteen years, running at max 30% output, an industrial windmill could spin until it falls apart and never generate as much energy as was invested in building it.

Sadly however, contradictory facts matter little in the ideological echo charmer of the great global warming swindle.

↳ **Reply**

1. **PAUL MAYS SAYS:**
December 7, 2015 at 5:17 pm
I have been posting about the break down of these monstrosities for several years and as nicely as Andy did and his break down it left out a Bunch of stuff… To your point there has Never been a single windmill that has made it to it's claimed life time and if your start from the first ones until the ones installed today the Average life span is about 7 years… Now I will give them the the newer designs will have a bit of a longer life they will do so with replacement of main bearing sets about every 5 years , those bearing sets are several tons of high strength high carbon steel requiring massive cranes and maintenance crews to disassemble the main nacelle .. All of which have their own CO2 output from raw material through job completion… Also each tower has a monthly maintenance program , semi annual maintenance and more in-depth Annual maintenance program… That requires trucks, power equipment and generalized replacement parts again with it's own CO2 load out…

A bit of what Andy left out is that each wind-farm requires a control center and phase matching transformer sub station with switch gear that adds massively to the materials tonnage

↳ **Reply**

1. **HARDIK PATEL SAYS:**

April 8, 2016 at 1:35 pm
Thanks for your additional information, so what can we do now to reduce the carbon emission?
Please any one advise.
STOPTHESETHINGS SAYS:
April 8, 2016 at 6:12 pm
If CO2 emissions are the problem, the only solution is nuclear power generation:

2. **E GRIFFITHS SAYS:**
April 10, 2016 at 7:23 pm
Hardik, commercial some food growers pump CO2 into their greenhouses to increase crop yields. What this tells us is that the levels of CO2 in our atmosphere is limiting the growth rate of plants – so, in effect, it's a trace gas. It is NOT the problem that is portrayed by the doomsayers. Increasing atmospheric CO2 concentrations will therefore speed up plant growth.

Climate change has always happened, and will continue to happen, with and without human habitation on Earth. In fact, if it were NOT for climate change, mammals – including humans – would not have proliferated on earth. It took the extinction of the dinosaurs to create conditions which allowed mammals to flourish and evolve on earth.

In fact, there have been several mass extinction events observed in the geological fossil records.

The biggest problem we are facing is deforestation and raping of our natural resources. If you believe the garbage about human induced CO2 emissions, about 20% of CO2 emissions are attributed change of land use due to deforestation.

If atmospheric CO2 concentrations and CO2 emissions were a problem, the geological Carboniferous Era never would not have happened.

According the the lying doomsayers, the earth will turn into a lifeless desert if CO2 emissions rise. In reality, CO2 is the main building block of life on earth – if you REMOVE CO2 from the atmosphere, the earth WILL turn into a virtually lifeless desert. Only very few life forms, not

dependent on solar energy (either directly or indirectly), will be able to survive in a CO2 free atmosphere.

At the start of the Carboniferous Era, atmospheric CO2 concentrations were much higher than they are now. What happened??? Life flourished, and vast quantities of CO2 were removed from the atmosphere in the form of coal deposits in huge swampy areas, and by the formation of vast limestone reefs in warm shallow seas. Fossil fuels are, essentially, stored solar energy.

What we are basically doing now, by burning fossil fuels, is recycling a small proportion of the extra CO2 that was in the earth's atmosphere during the Carboniferous Era.

In Britain, before the start of the industrial revolution, the forests were becoming depleted through over-exploitation. Burning coal and other fossil fuels has basically protected Britain's forests from total destruction 2-3 centuries ago.

34. **TOMMY SAYS:**
October 25, 2015 at 5:31 pm
Like all projections from wind companies, it is grossly over estimated for output of power; and underestimated on costs – some of the pads at Macarthur took upto 1100cm3 of concrete – as it kept disappearing in the softer country. I am a neighbor of turbines 1.5km away at the Macarthur wind factory.

↳ **Reply**

35. **DAN LYONS SAYS:**
October 17, 2015 at 6:57 am
You have failed to quantify how much CO2 a turbine offsets and so your analysis is incomplete. I'm all in if wind power turns out to be more carbon intensive than fossil fuels but you don't have me any where near convinced yet. Too many holes in your data and a myriad of other things you have not considered. As for the downtime issues with wind, yes, and there are times when wind provides too much power. So what is the solution to that? Simple – hydrogen through electrolysis. Produce Hydrogen, build decentralized hydrogen power plants and use them in place of coal and natural gas/nukes to bolster the grid when wind isn't supplying enough.

↳ **Reply**

STOPTHESETHINGS SAYS:
October 17, 2015 at 10:45 am
Dan, you haven't bothered to properly consider the article, and you certainly haven't clicked on the links included or embedded. Otherwise, you would not be raising your first contention; viz, the assertion that wind power 'offsets' CO2 emissions in the electricity sector. There is no such evidence anywhere in the world, where wind power is attempted to be 'integrated' into a coal/gas fired grid, to support any such assertion.

The article above is not meant to 'convince' anyone. But we have over 1,100 others that might – many of them dealing with the fictions that: wind power is a meaningful power source; reduces CO2 emissions; and is cheaper than conventional generation sources.

You casually gloss over intermittentcy, mere 'downtime issues' as you call them. We take it you're not presently in intensive care on life-support relying on wind power alone, then?

However, that is THE fundamental flaw in a source that is being forced into economies under ideological mandate, backed by colossal subsidies, coupled with ludicrous claims that it will completely replace conventional sources, including nuclear (witness Germany).

In the post above you will not have studied the data or analysis in these posts:

The Wind Power Fraud (in pictures): Part 1 – the South Australian Wind Farm Fiasco

**** In today's post we lay out the wind power fraud in pictures, as it's perpetrated in, what's referred to as, 'Australia's wind power capital', South Australia (we expand the net to capture the debacle on the entire Eastern Grid – see our post here). To call the 'performance' of SA's 17 wind farms (spread … Continue reading

STOP THESE THINGS 13

The Wind Power Fraud (in pictures): Part 2 – The Whole Eastern Grid Debacle

**** Yesterday, we laid out the wind power fraud in pictures, as it's perpetrated in, what's referred to as, 'Australia's wind power capital', South Australia: The Wind Power Fraud (in pictures): Part 1 – the South Australian Wind Farm Fiasco To call the 'performance' of SA's 17 wind farms (spread over a vast area of … Continue reading

STOP THESE THINGS 5

Those posts demonstrate – that wind power can never amount to a meaningful power source, and defeat the claims that by spreading turbines over a large area output can be smoothed and become meaningful (ie satisfy demand on a consistent and predictable basis).

The evidence involving actual CO2 output where wind power is added to gas/coal-fired grids is all against your primary contention:

http://www.clepair.net/statlineanalyse201208.html

Click to access le-pair-et-al-wind-turbines-as-yet-unsuitable-as-electricity-providers.pdf

Click to access bratby-ghg-abatement.pdf

The only counters to the above will be models based on fantastical assumptions.

We don't propose to dip into your suggestions about turning electricity into hydrogen, simply because you will never find a market for power that would need to retail at 10-20 times the price of conventional power (at a guess – with wind power already costing 4 times the cost of coal-fired power – only available 25% of the time, of course – and heavens knows the costs of converting electrical power to hydrogen gas and then back).

STT is a specialist site, devoted to debunking the fiction that wind power offers a solution to anything other than ideological vanity. We don't mean to advance the 'cause' of any particular power generation source, but to be meaningful it must be available on-demand and affordable to all. Everything else involves intellectual dishonesty, as well as a selfishness that we will never condone or tolerate. Ask yourself this question: are you prepared to leave any single one of your fellow citizens (someone's elderly grandmother, say?) sitting freezing in the dark all for an ideological whim? If you're prepared to do that, then you're probably happy to see the poorest billion on the planet continue to keep cooking on dung and twigs in an unlit hovel. We're not content to see either.

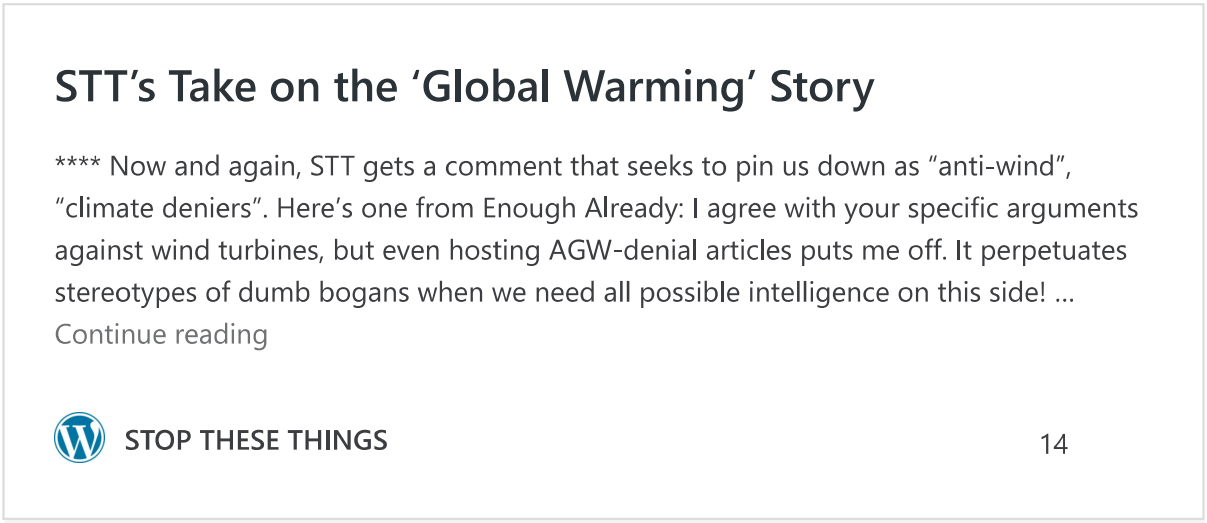
↳ **Reply**

1. **DON CHARLES STEINKE SAYS:**
   August 14, 2016 at 6:02 am
   1. Do you believe that humans are exacerbating climate change, and how?
   2. Do you believe that Climate Change will cause huge economic and social problems, and why?
   3. What action do you recommend to address climate change?

   STOPTHESETHINGS SAYS:
   August 14, 2016 at 7:09 pm
   1. impossible to tell. 2. nothing compared to the $trillions being squandered on meaningless symbolism like wind and solar power and the economic and social costs thereof. 3. stop wasting resources on energy sources which are proven failures, direct those resources to long-term adaptation.

   And if CO2 is the culprit, then nuclear power generation is the only solution in the electricity generation sector.

   You'll find more of our position here:



2. **DON CHARLES STEINKE SAYS:**
   August 15, 2016 at 11:23 am
   Do you think CO2 is a greenhouse gas?

   STOPTHESETHINGS SAYS:
   August 15, 2016 at 8:39 pm
   What is this? 20 questions? You've had 3 and we answered them.

   If you want to debate global warming or climate change take it to Joanova or wattsupwiththat. You'll get plenty of answers there.

36. **GERRY DIONNE SAYS:**
    September 22, 2015 at 6:58 am
    So , in comparison , how much CO2 gets emitted when building a skyscraper , say like the CN tower in Toronto ? A useless building that cost many millions to build . All the high rise buildings around the world ? Not trying to say windmills are a good thing or bad thing , but your CO2 argument falls short .

    ↳ **Reply**
    STOPTHESETHINGS SAYS:
    September 22, 2015 at 6:26 pm
    Gerry, you clearly haven't read the post. And certainly not the material linked within it. Skyscrapers and their owners don't claim to reduce/abate CO2 emissions in the electricity sector, or at all. No-one does. We do not understand your point. The wind industry claims – as the justification for the $billions in endless subsidies – and the excuse for the fact that it is meaningless as a power source – simply because it cannot be delivered on demand – that wind power makes very substantial reductions in CO2 emissions, when, in fact it does no such thing. This little post simply points to some of the CO2 emitted to build a single turbine. We welcome sensible comments on this site, but not those from people who haven't bothered to read the posts on which they propound their world views.

    ↳ **Reply**
37. **PATTIKELLAR SAYS:**
    September 22, 2015 at 5:53 am
    Reblogged this on **pattikellar** and commented:
    For those who want more information on what is in and under an Industrial Wind Turbine….

↳ **Reply**

38. **JOHN LATILLA SAYS:**
July 8, 2015 at 11:39 am
Great article – I am pretty sure that all wind farms are located in the countryside.

I don't know why that is as it seems logical to install them right in the cities to reduce the transmission costs. They are after all "silent, safe and eco friendly!"

Maybe they are not built in the cities because the majority of their biggest fans also happen to live in the cities!

↳ **Reply**

1. **MIKKO HALONEN SAYS:**
July 30, 2015 at 11:05 pm
To be fair the majority of the fans for anything will live in cities are majority of folk live in cities 🙂

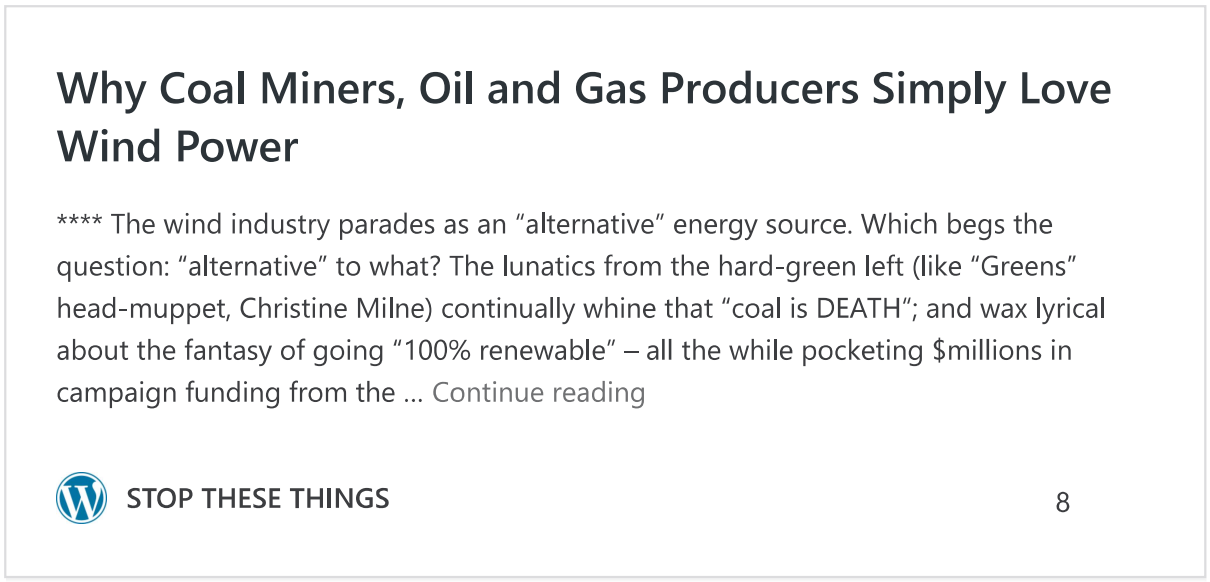
↳ **Reply**

2. **E.A. SAYS:**
September 18, 2015 at 6:09 pm
I don't know of major cities that have consistent enough wind, at least enough to justify wind turbines on more than an intermittent basis. Chicago comes to mind in America due to its nickname, but it's all relative. Offshore near some coastal cities seems viable. I don't think there's a major conspiracy to keep them out of view from cities, since a number of them are easily seen from urban commutes, but they definitely favor cheaper rural lands to directly invade.

↳ **Reply**

39. Pingback: **Does installing wind turbines emit more CO2 than they save? | bigjsl**
40. **GEORGE PAPADOUPOULOS SAYS:**
May 29, 2015 at 5:29 pm
Thanks STT for continuing to expose the greatest fraud of all time.

The intellectual pygmy will retort that COAL IS DEATH – or some such – and claim that wind power is replacing coal fired power and will, in time, completely replace it. The lightweight will claim that the road to a healthy future is paved with an endless sea of turbines and that this terrifies fossil fuel interests. When, of course, nothing could be further from the truth:



The wind power worshipping cult then goes on to claim that anyone who points out even the most basic (and unassailable) facts (like those in the post above) are obviously in the employ of BIG COAL. Thinking it a bit like the 'BOKKO' moment in one of Batman's battles with his sworn enemies.

But that merely exhibits the kind of intellectual rigour that attaches to people who routinely use terms such as "believer" and "denier" – in the manner of a petulant child, who knows they've lost the argument with an adult – in respect of anyone who has the temerity to point to the nakedness of their Emperor.

Facts have always troubled them, hence their characteristic resort to name calling and the fallacy that because you point to the facts (that challenge their limited and ignorant world view) you must have an agenda. When in truth, their 'case' is simply a nonsense. And they haven't got the maturity or grace to admit it.

↳ **Reply**

41. **CHRIS SAYS:**
August 17, 2014 at 11:39 am
What about the hundreds of litres of oil in the gearbox that has to be changed every so many hours? This is the oil that, when it catches fire, falls burning from the 100 mtrs high towers.

↳ **Reply**

1. **DAN TARPLEE SAYS:**
August 17, 2015 at 11:02 am
While there are no global warming emissions associated with operating wind turbines, there are emissions associated with other stages of a wind turbine's life-cycle, including materials production, materials transportation, on-site construction and assembly, operation and maintenance, and decommissioning and dismantlement.

Estimates of total global warming emissions depend on a number of factors, including wind speed, percent of time the wind is blowing, and the material composition of the wind turbine. Most estimates of wind turbine life-cycle global warming emissions are between 0.02 and 0.04 pounds of carbon dioxide equivalent per kilowatt-hour. To put this into context, estimates of life-

cycle global warming emissions for natural gas generated electricity are between 0.6 and 2 pounds of carbon dioxide equivalent per kilowatt-hour and estimates for coal-generated electricity are 1.4 and 3.6 pounds of carbon dioxide equivalent per kilowatt-hour*

*IPCC, 2011: IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation. Prepared by Working Group III of the Intergovernmental Panel on Climate Change [O. Edenhofer, R. Pichs-Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, C. von Stechow (eds)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1075 pp. (Chapter 7 & 9).

↳ **Reply**

STOPTHESETHINGS SAYS:
August 17, 2015 at 8:16 pm

Thanks for your comment Dan, now you might like to calculate the additional emissions generated by gas and coal fired sources, when wind power output collapses entirely, almost every other day:

> **The Wind Power Fraud (in pictures): Part 1 – the South Australian Wind Farm Fiasco**
>
> **** In today's post we lay out the wind power fraud in pictures, as it's perpetrated in, what's referred to as, 'Australia's wind power capital', South Australia (we expand the net to capture the debacle on the entire Eastern Grid – see our post here). To call the 'performance' of SA's 17 wind farms (spread … Continue reading
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> STOP THESE THINGS 13

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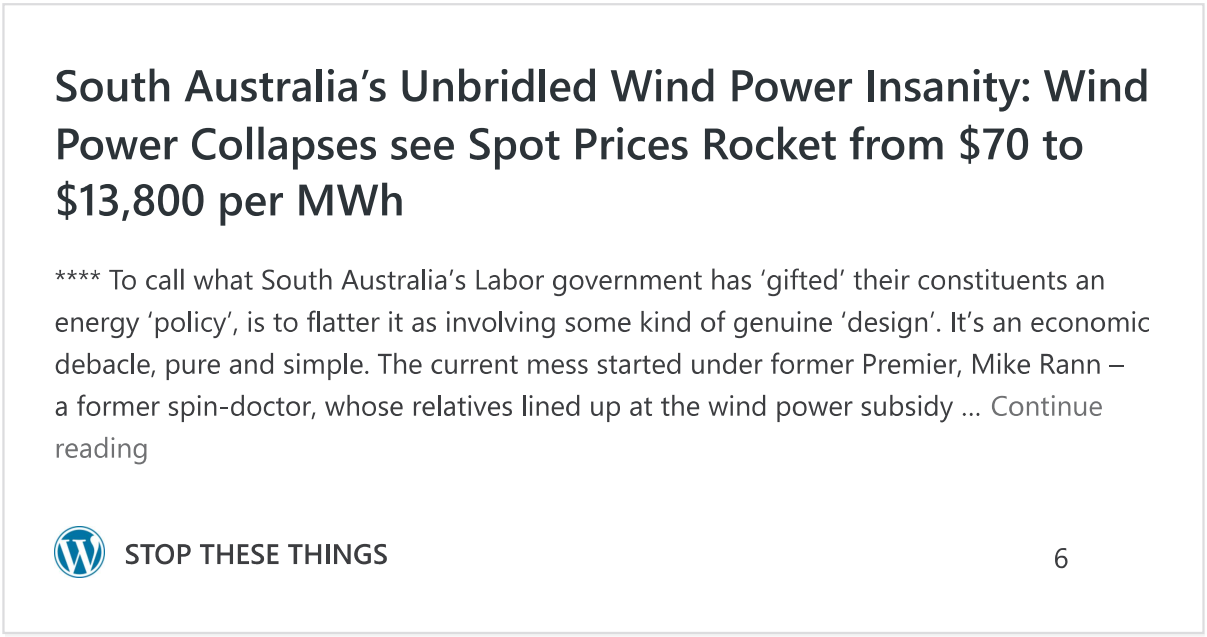
>
> STOP THESE THINGS 5

And especially the gas used in highly inefficient OCGTs – now being run as baseload sources in places like South Australia:



42. **JACKIE ROVENKSY SAYS:**
August 17, 2014 at 10:12 am
Andy, and that's just the towers. As you point out you have not in detail calculated other emission costs, and the cost to the environment of such things as 'value adding' the raw rare earth materials for the magnets.
The cost in emissions to produce each and every operating industrial wind energy turbine so obviously outweighs any savings.
It beggars belief anyone could consider they're good for the environment – but there we go those who should know better are falling for that old furphy – 'If the 'experts' says its good it must be'. Maybe they don't know the saying 'If it sounds too good to be true it probably is'.

↳ **Reply**

43. **TERRY CONN SAYS:**
August 17, 2014 at 10:02 am
Jackie Rovensky asks in the post 15th August 2014 'How is it that people still spruik for this industry….?' As this post and numerous others by STT points out over and over again there is no reason at all to support wind farms and numerous reasons to have them stopped and shut down.
Last week Tim Flannery was a guest at the Mudgee writers festival. He was asked by an ABC reporter 'what should be done about the RET !' He replied 'let the voters decide and ask them do they 'want renewable energy?' The answer, of course, is that everyone would say 'yes'. Therein lies the answer to Jackie's question! The problem is that people in high places, such as Flannery, want the 'fantasy' to drive the issue and refuse to allow the reality to get in the way. Secondly, 'these spruikers' are gleefully supported by the 'rent seekers'. Thirdly, and perhaps most importantly, 'the voters' are either too busy and too far away from wind farms to bother delving for facts. Also, 'the voters' are because of our modern world totally disconnected from physical reality and how things actually work.
Another problem is, in Australia at least, the 2001 legislation that introduced the RET simply listed 19 so called forms of 'renewable energy' as being eligible to receive RECs, 'wind' being one of them. No definition of 'renewable energy' or 'baseload renewable energy' was attempted or required.'Wind' has become the only large scale type of so called renewable energy that has been pursued.

The solution is that the massive education of 'the voters' and their civic leaders as pursued by STT and others who 'actually know' (and who are now getting to be a 'critical mass') about the massive 'wind power scam' must continue. For the rest of us I suggest just keep asking the 'spruikers' — how do you store wind power for when there's no wind? Very few know that you can't and then the penny starts to drop!!
Congratulations to STT.

↳ **Reply**

44. **MARIE SAYS:**
August 17, 2014 at 2:51 am
Great job!!!!! Thanks,

Marie
Denmark

↳ **Reply**

45. **WALTER CUDNOHUFSKY SAYS:**
August 16, 2014 at 11:26 pm
Thank you Andy for this very helpful and factual set of calcualtions.

I am sure you realize this but you do not mention the co2 produced in long distance shipping, in the large/enormous machine erection process, in New England's case the cutting of acres of carbon sequestering forest and releasing that co2. Then there is the replacement of major parts (blades, nacels etc every ten years) far more frequently that the industry dares make public.
Then there is (as you allude) the C02 required for the redundant polluting back up machines.

I beleive and would like to show your statement to be true
"You see, renewables like wind turbines will incur far more carbon dioxide emissions in their manufacture and installation than what their operational life will ever save."

You are so close to aggregating the life cycle co2 cost that it is worth a shot to complete the work. The only possible defense of industrial wind is co2 reduction and with that option gone conclusively it deserves not to exist.

Thank you again
Walter Cudnohufsky
Ashfield, Massachusetts
walt@wcala.com

↳ **Reply**

1. **E GRIFFITHS SAYS:**
August 18, 2015 at 1:28 am
And don't forget the waste from the extraction of rare earth metals (namely neodymium in industrial wind turbines) accumulating in a huge radioactive toxic acid lake at Baotou in Inner Mongolia.

http://www.dailymail.co.uk/home/moslive/article-1350811/In-China-true-cost-Britains-clean-green-wind-power-experiment-Pollution-disastrous-scale.html

All this for "clean green renewable" energy 🙁

↳ Reply