Time to Get Serious

By George Erickson 9-6-22

We are in deep trouble with climate change.

Expanding nuclear power is the safest, most effective way to cut back on carbon.

2,000 years ago, when there were just

300 million people, Seneca warned,

“A bull is content with a meadow,

and a forest is enough for 100 elephants,

but the little body of a man devours

more than all other living creatures.”


Mexico City
Think about the garbage.
Let’s also look closer to home


Sustainable
Sustainable?
Garbage barges
10,000 tons/day

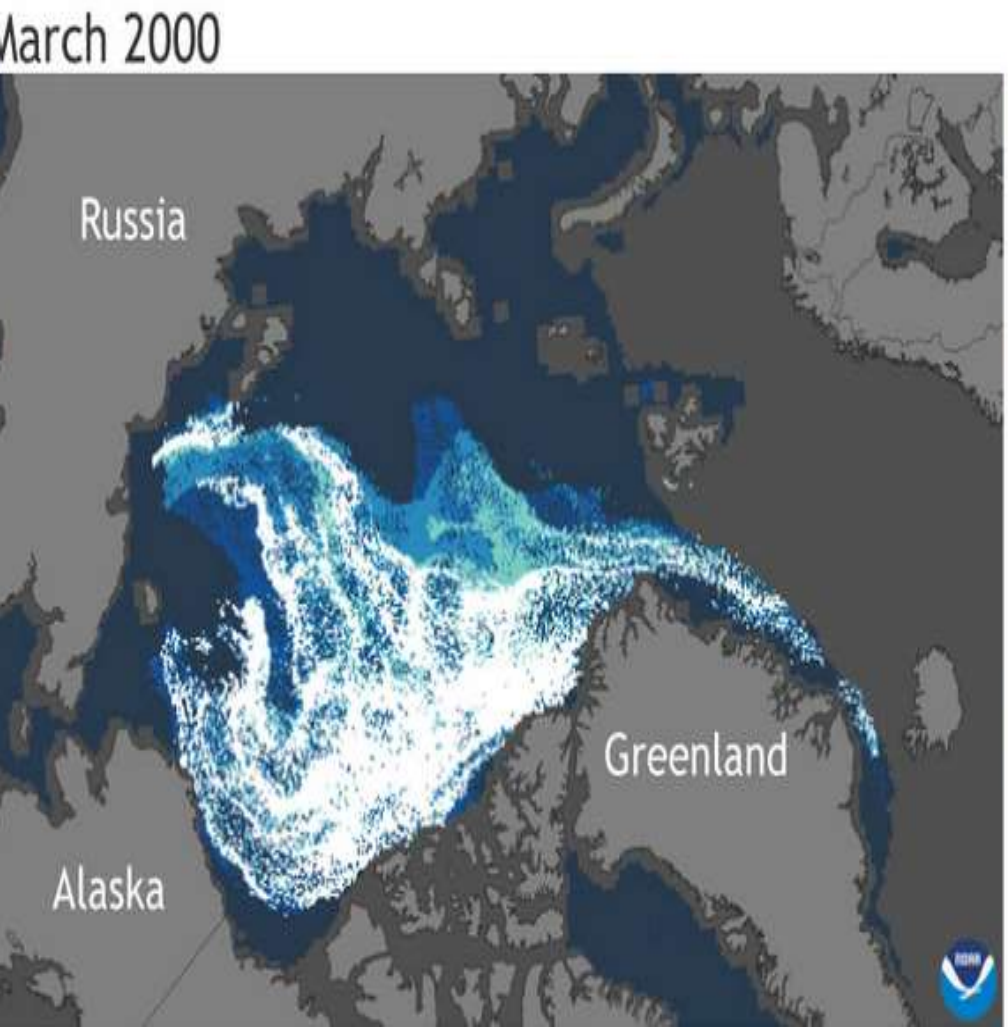
Extreme weather events - Nebraska 2019

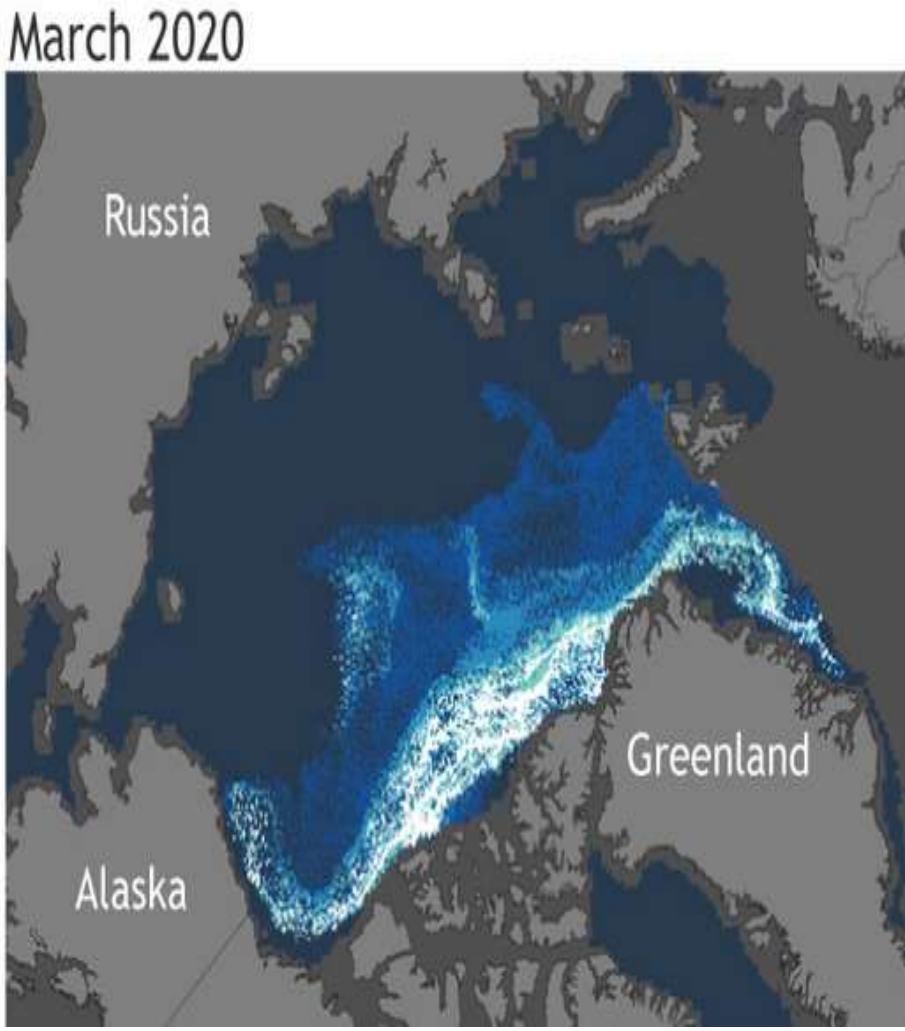
Lake Mead 2021

Lake Powell, which feeds Lake Mead, is down 150 feet


By 2025, Cairo, population 20,000,000,
will be short of water,
by 2050, the 6 billion people who depend
on dwindling mountain runoff
will be desparate.

In March 1950 the Arctic ocean was 100% ice, but note the decrease from 2000 – 2020, and it's worse now!





Ice reflects heat, but water absorbs it, and warm water holds less oxygen.

Even a healthy polar bear is no match for a grizzlie.

California - the Golden State - 2020

Bark beetles, once held in check by cold winters, are surviving.


Worldwide, we create ~ 85% of our electricity and heat for buildings and industry by burning carbon, so why are we expanding carbon-dependent, inefficient wind and solar farms instead of expanding carbon-free, highly efficient nuclear power?

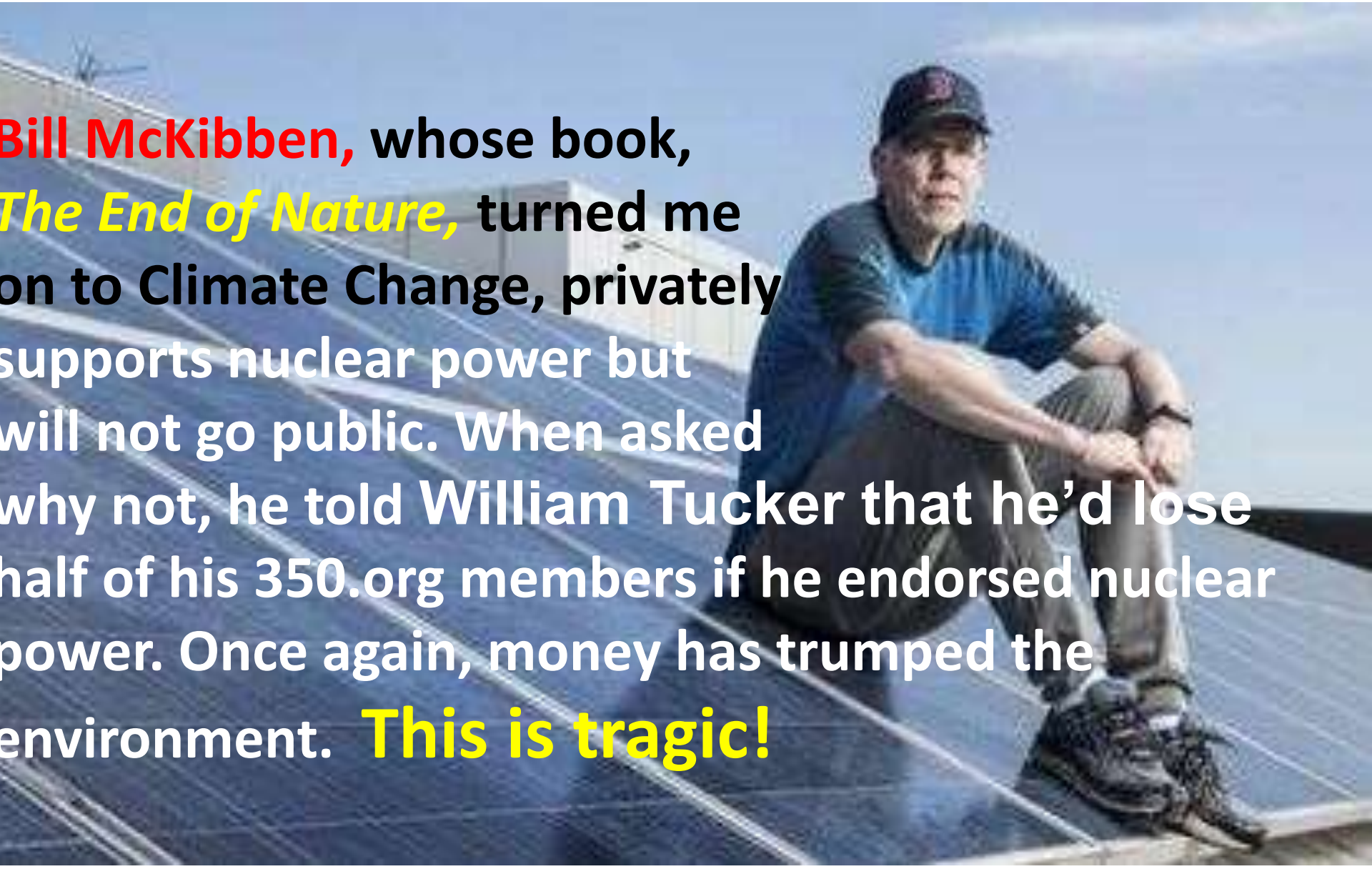
Canada's Tar Sands – one of North America's worst GHG emitters.

We have created 2 trillion tons of Industrial Age CO_2, to which we are adding 50 billion tons/yr. 1/3 has already dissolved in our seas, making them increasingly hostile to the life that provides 20% of our protein and 50% of our oxygen!


Russia, China, Korea, Turkey, India, and 15 other nations are expanding nuclear power,
but, led by BP, Exxon and willfully ignorant "greens," we have closed 4 nuclear plants while fighting to keep Diablo Canyon open!

Yes, “willfully ignorant.”

The Sierra Club and its clones that take money from oil companies refuse to watch presentations on the superiority of nuclear power and the defects of wind and solar.



Watch Michael Moore's *Planet of the Humans*.
It's FREE on the web.

Protecting Mining Jobs and Communities

A message from Australia's coal miners

Climate change is real and we need a Government that will tackle it.
Doing nothing is no longer an option.

Voters have a choice at the election:

Labor

- ☑ Support $1.5 billion investment in Clean Coal Technology
- ☑ No nuclear power station

Coalition

Continue to neglect Clean Coal Technology

Develop nuclear power stations that would replace the coal industry.

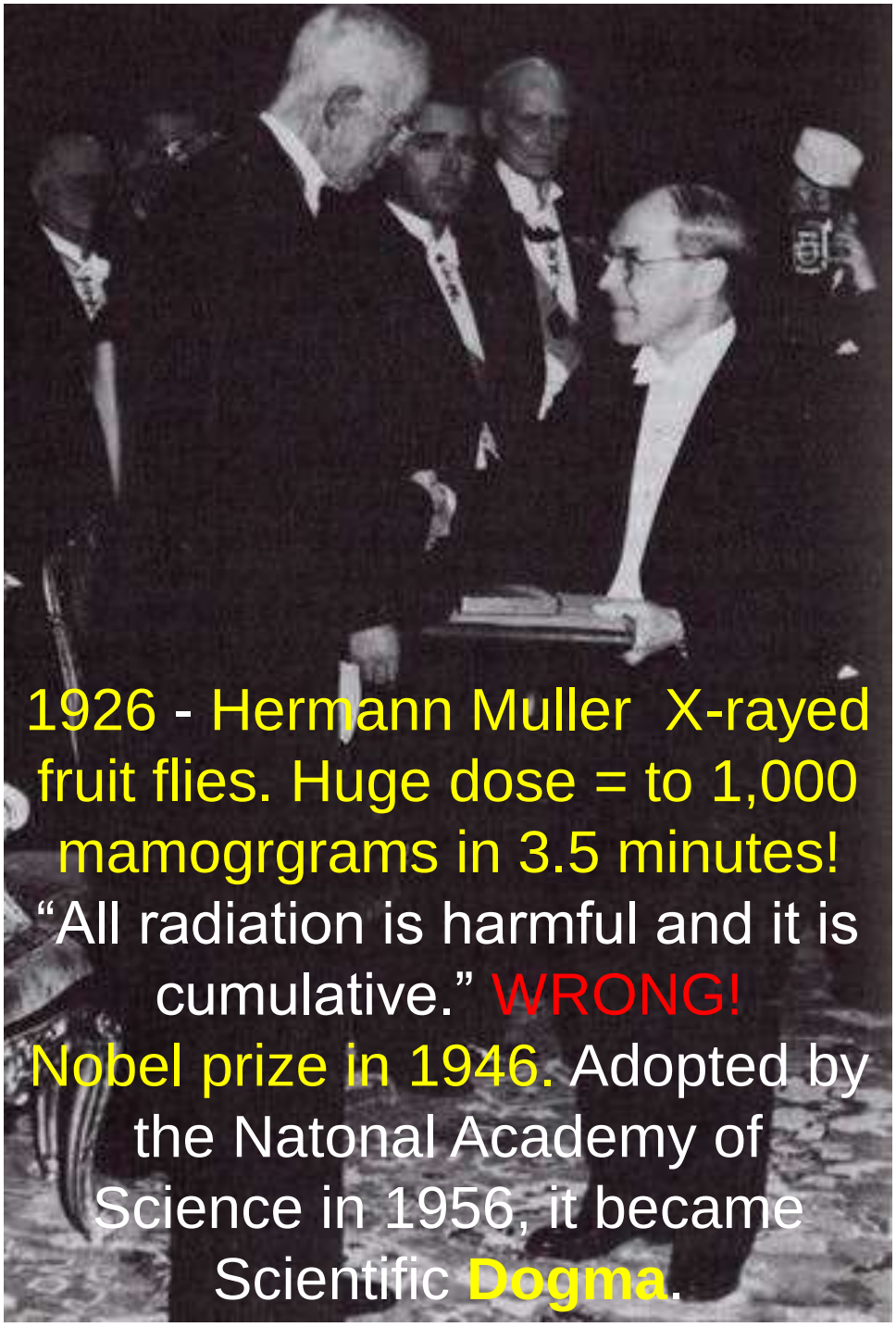
Nuclear Power Will Kill the Coal Industry

communities don't support the Liberal and National parties' plans to introduce nuclear power stations.

Going nuclear is dangerous and will mean the end of our coal industry. Choose a safe

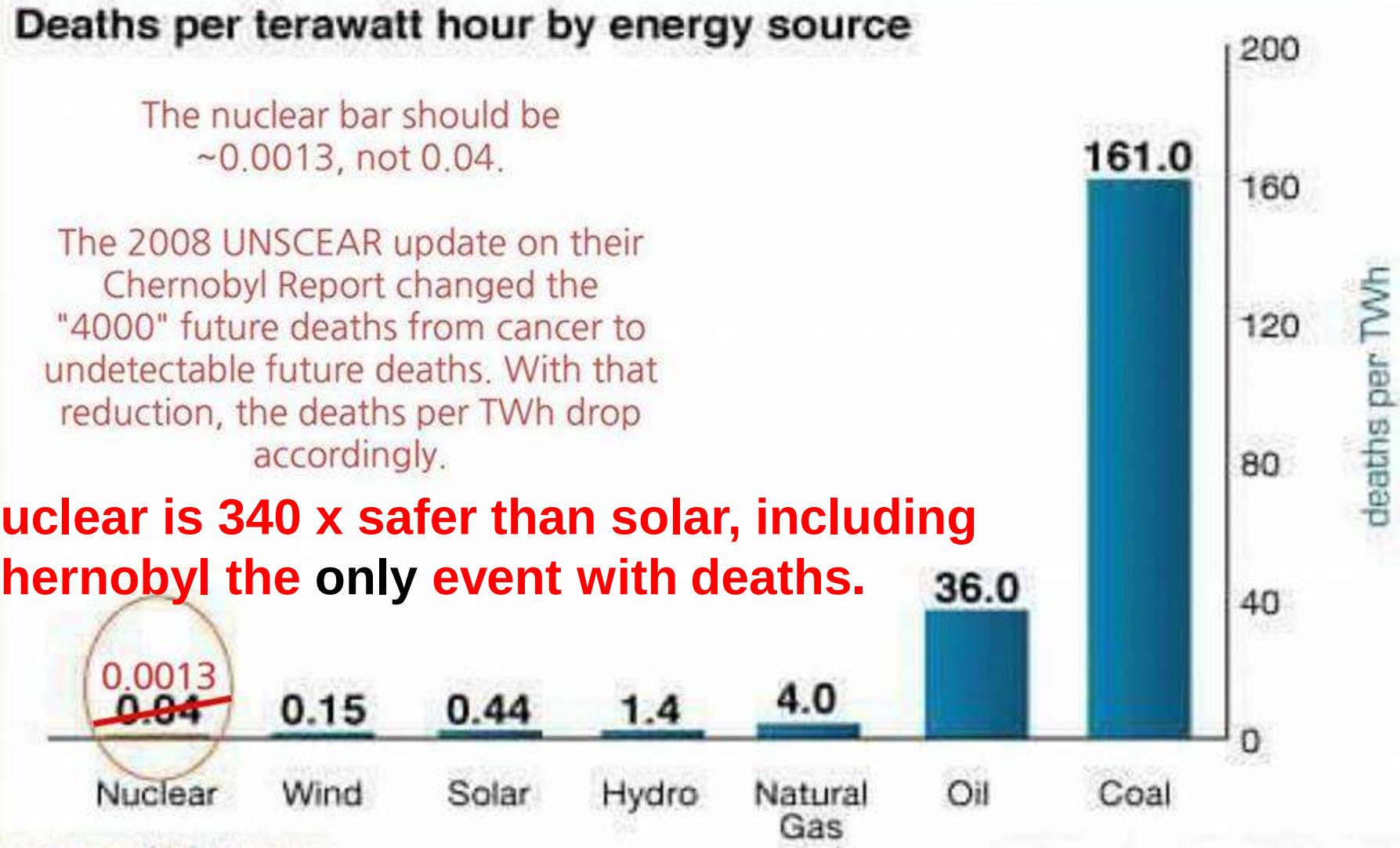
It's all about jobs, money and nuclear FEAR

that began in 1926 with Hermann Muller


1926 - Hermann Muller X-rayed fruit flies. Huge dose = to 1,000 mamogrgrams in 3.5 minutes!
“All radiation is harmful and it is cumulative.” WRONG!
Nobel prize in 1946. Adopted by the Natonal Academy of Science in 1956, it became Scientific Dogma.

Nuclear: The Safest Energy Source of All

World Health Organization



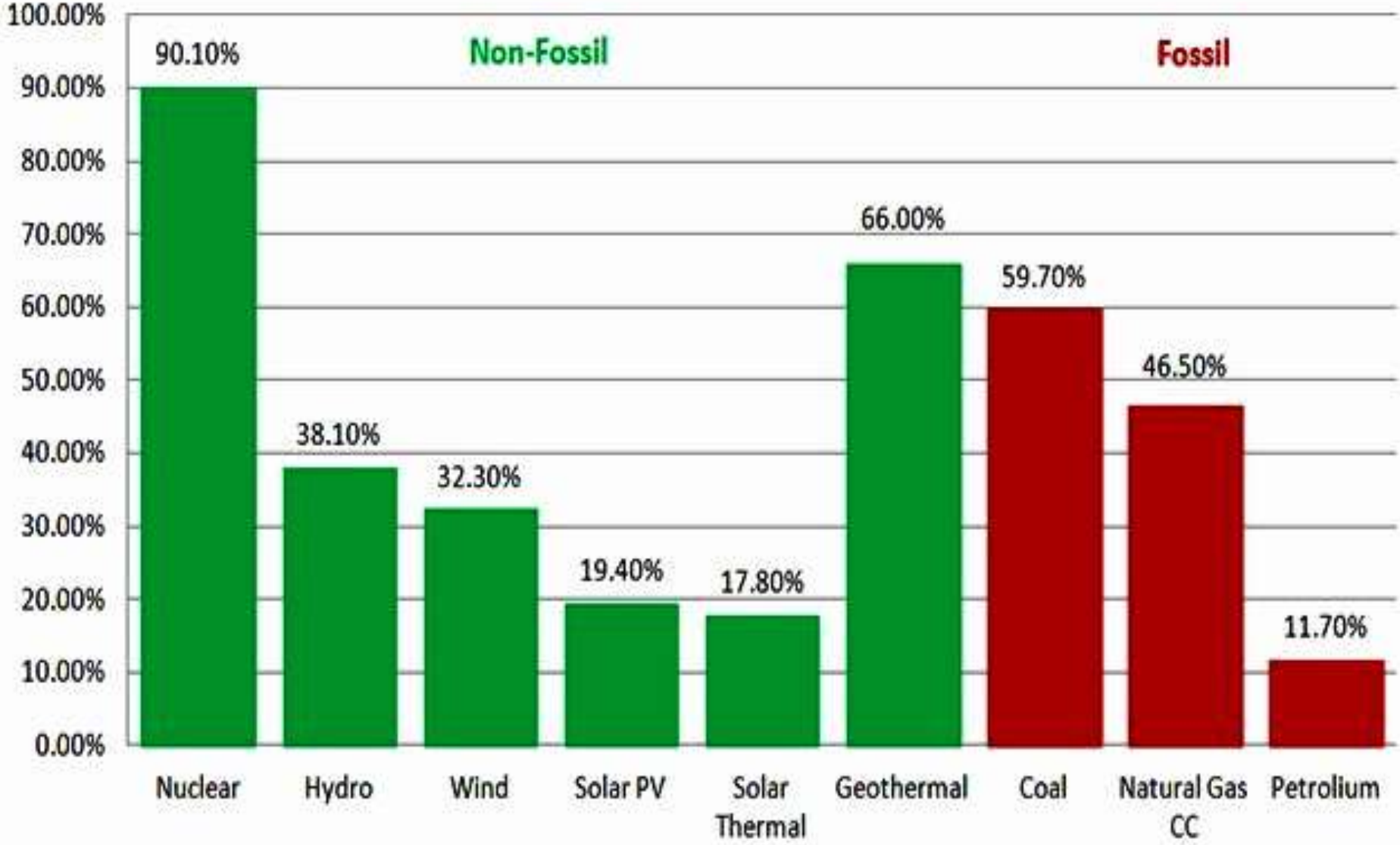
All methods of creating electricity are evaluated in two ways: the first reveals how much electricity can be generated under ideal conditions. The second measures how much is created long term, usually 1 yr

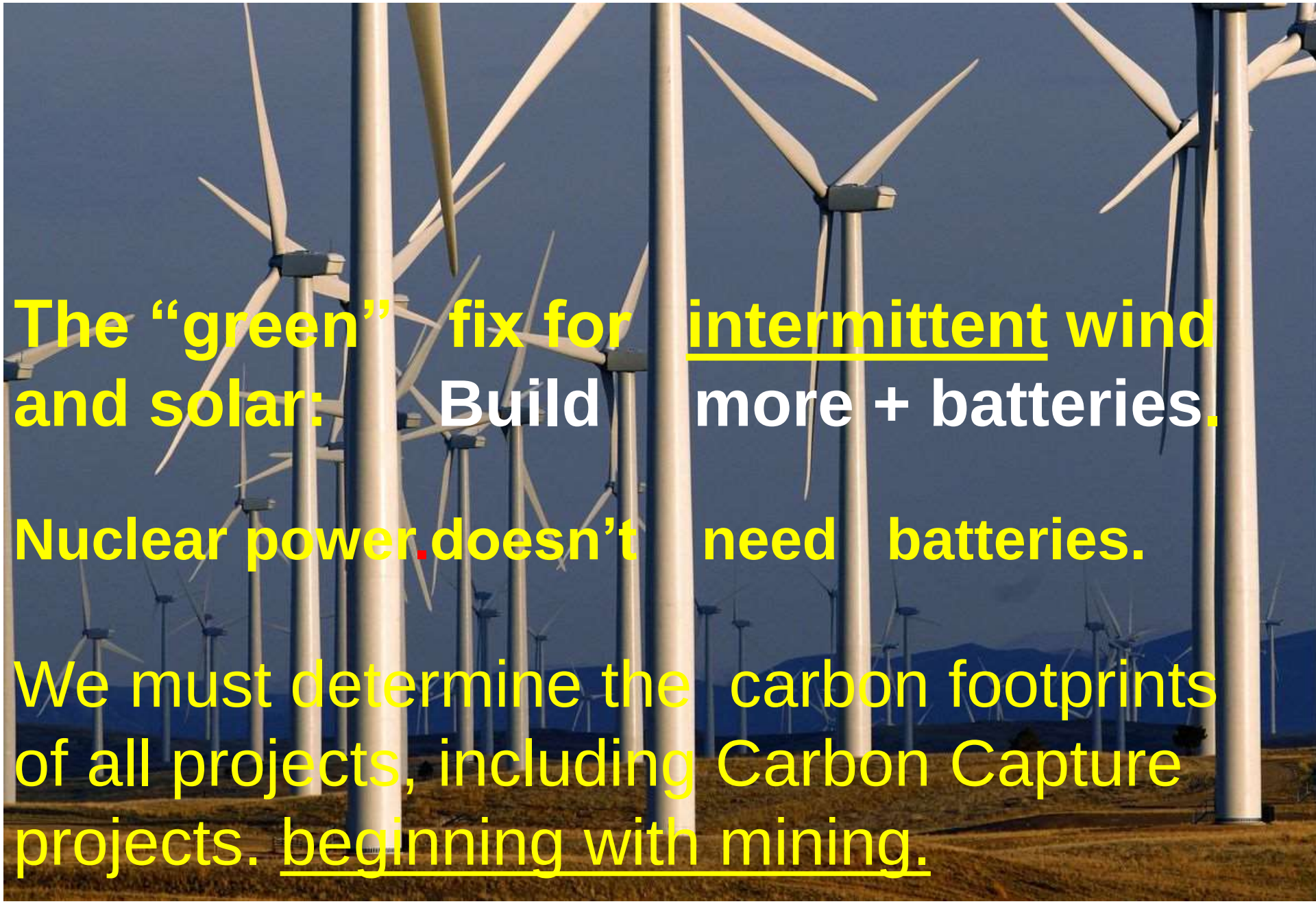
Nuclear power generates ~92% of its rated capacity. Wind and solar generate only 33% and 20% respectively, with the rest being created primarily by power plants that burn carbon. They are not "green." They are carbon-dependent!

The proof is in the next image.

2013 Capacity Factors by Energy Source

(Source: U.S. Energy Information Administration)




The “green” fix for intermittent wind and solar: Build more + batteries.
Nuclear power doesn’t need batteries.
We must determine the carbon footprints of all projects, including Carbon Capture projects. beginning with mining.

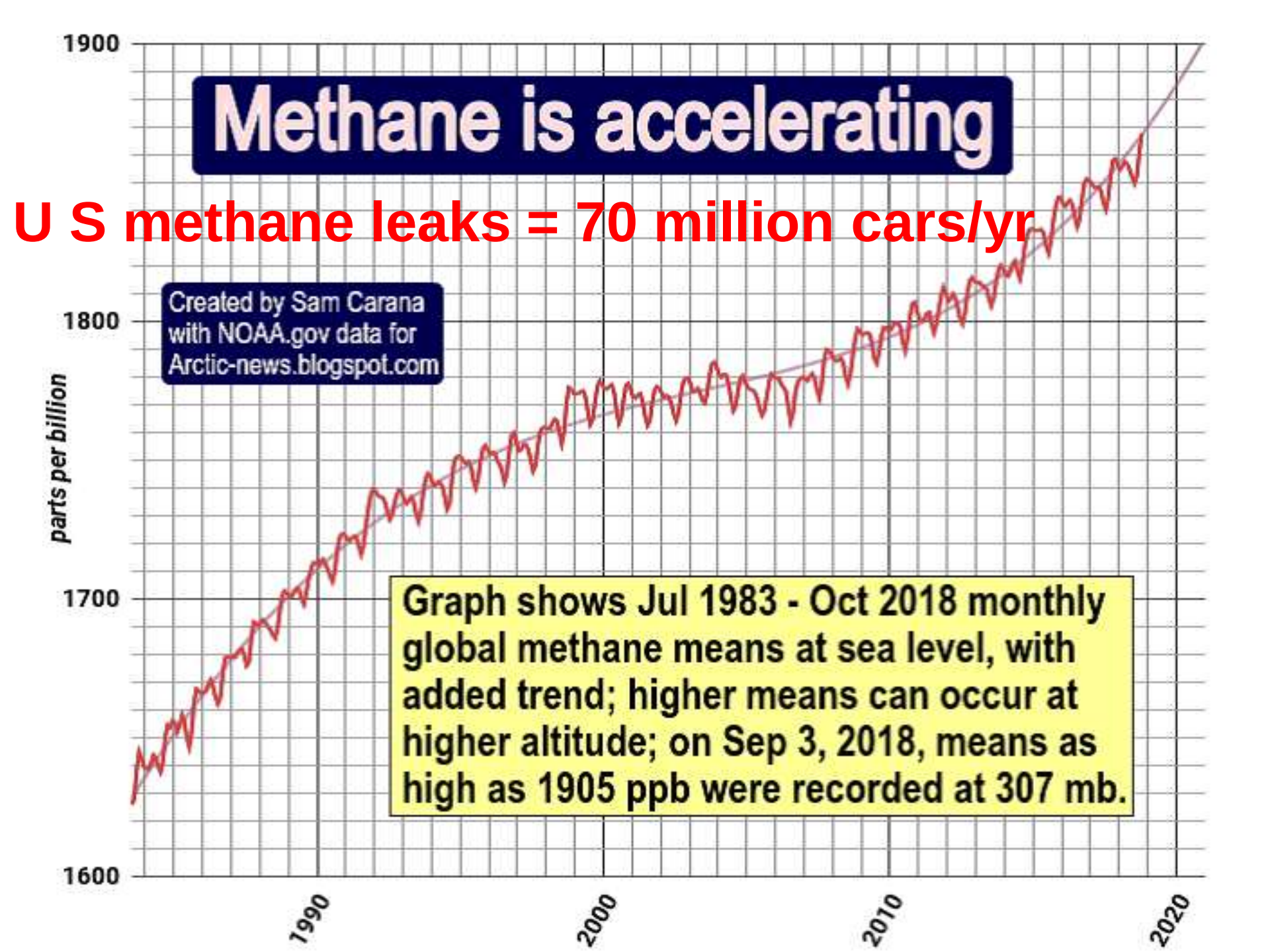

Teslas Australian Battery Array
129 Megawatt hours of storage
50 million dollars
$388,000 /MWhr
Ball of Thorium
4,200 Megawatt hours of stored energy
Less than 2,000 dollars
47.6 cents/MWhr
THORIUM
We have enough
uranium and thorium to last 100,000 years
Batteries have huge
environmental consequences.

Wind and solar are carbon-dependent!

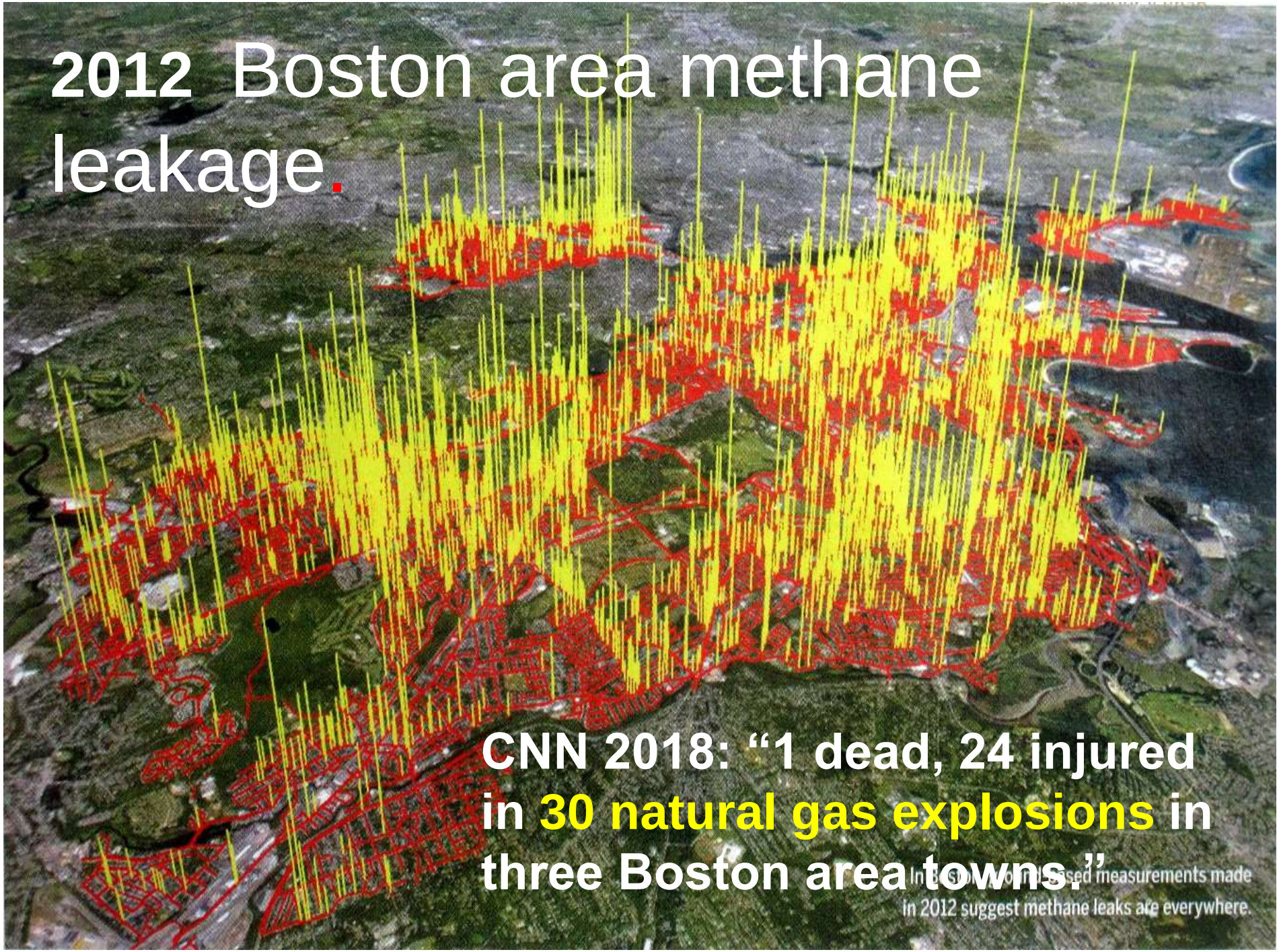
Natural gas is 90% methane, which is 80 x worse than CO2 for decades.

Fracking pollutes groundwater

Wind turbines are flying high. But how do you keep the lights on when the wind stops blowing? At BP, we see a simple answer: We see cleaner-burning natural gas. It's a perfect partner to renewables.

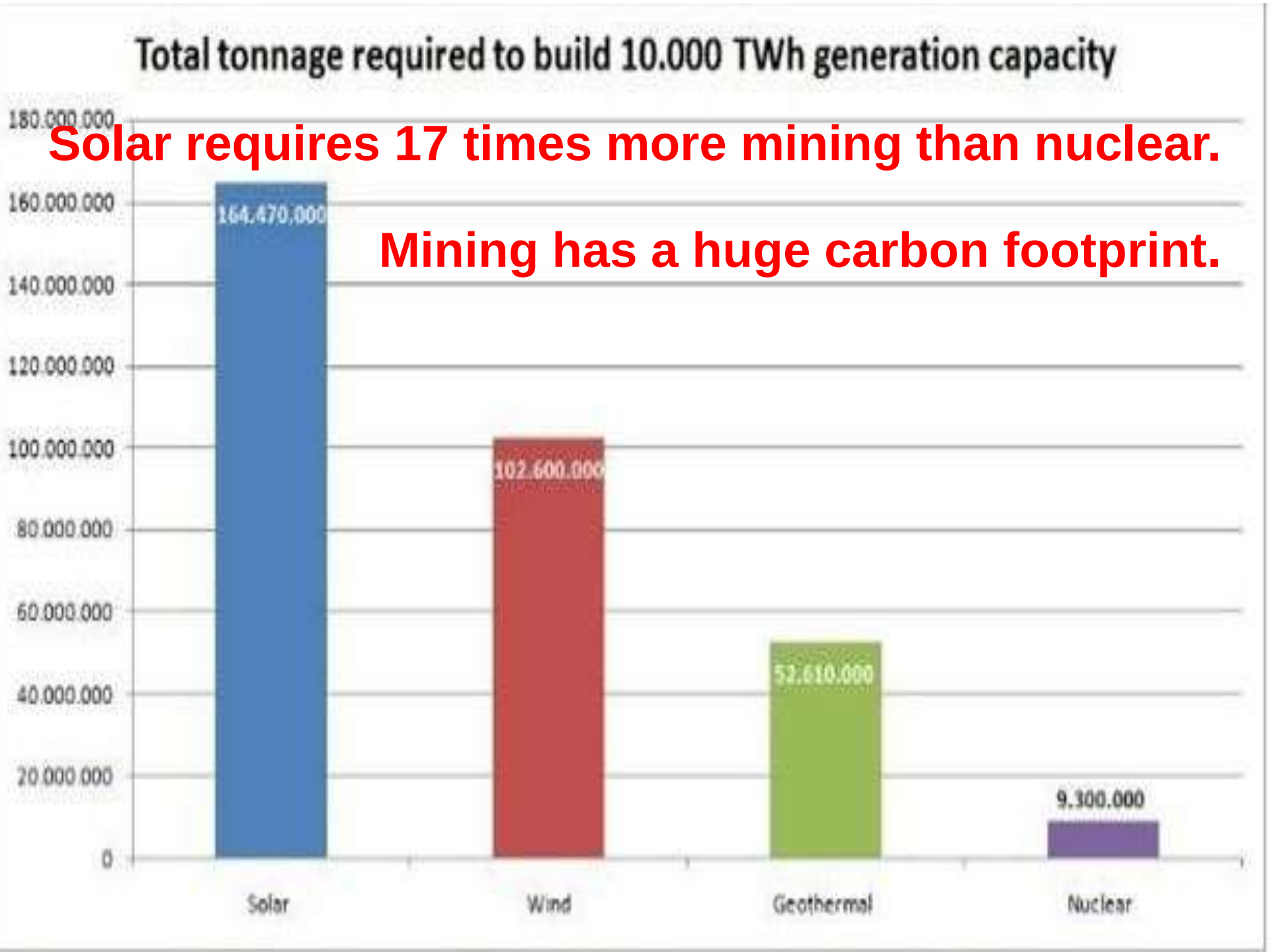

Methane is accelerating
U S methane leaks = 70 million cars/yr
Created by Sam Carana with NOAA.gov data for Arctic-news.blogspot.com
parts per billion
1900
1800
1700
1600
1990
2000
2010
2020
Graph shows Jul 1983 - Oct 2018 monthly global methane means at sea level, with added trend; higher means can occur at higher altitude; on Sep 3, 2018, means as high as 1905 ppb were recorded at 307 mb.

2012 Boston area methane leakage.



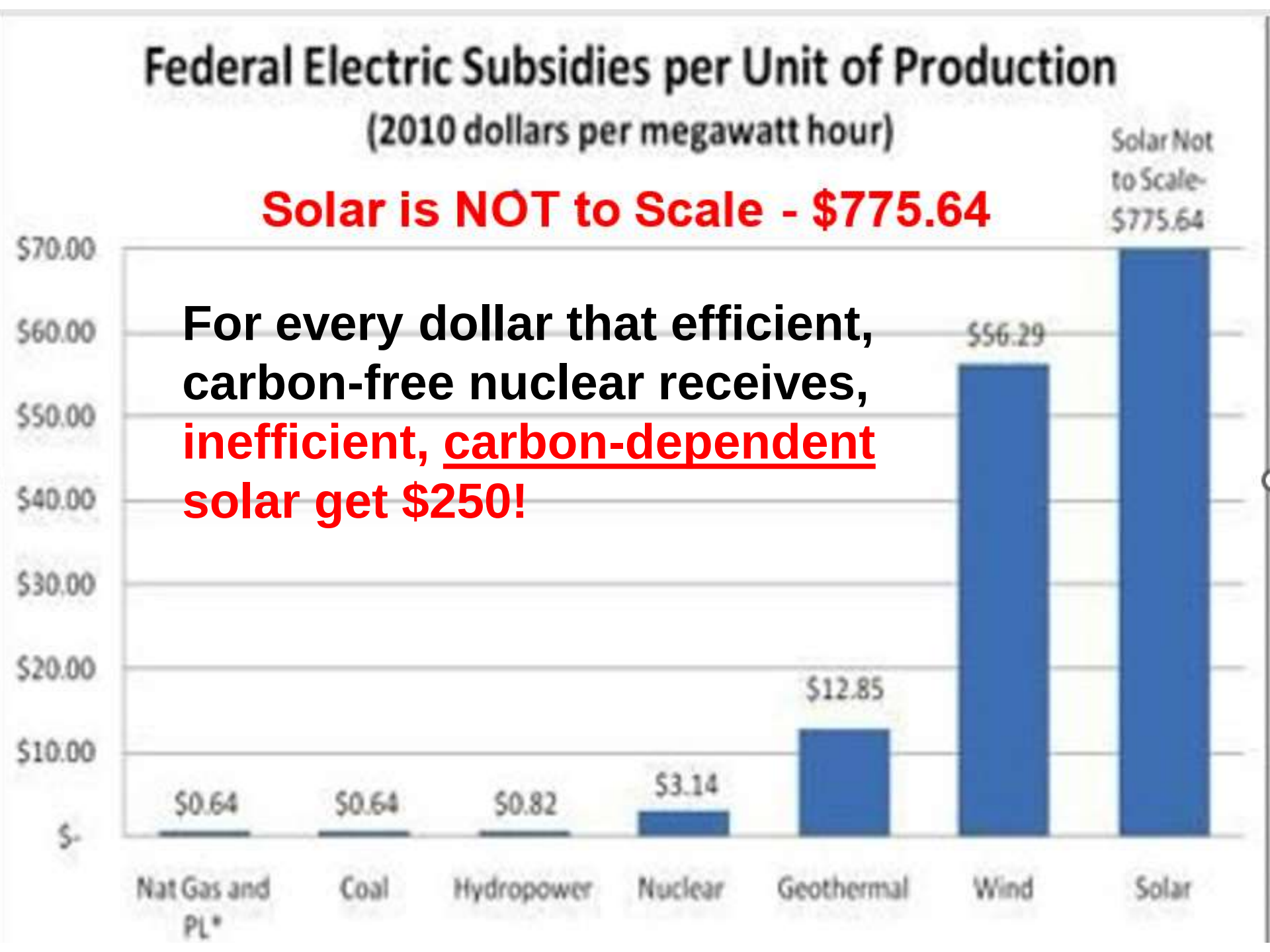
Bakken flaring could power Chicago and Washington DC.

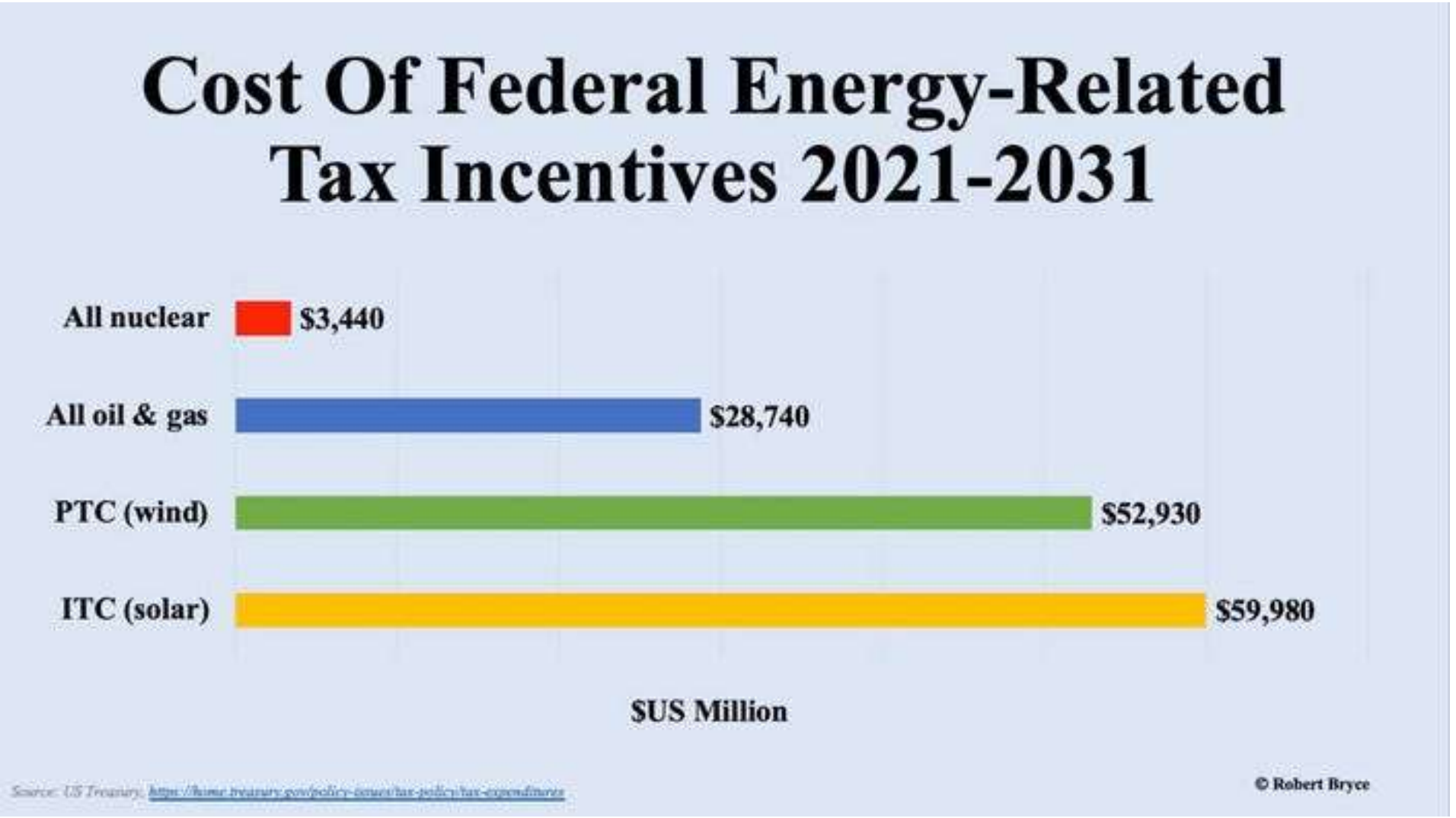
It's cheaper to flare it than pipe it to market.


Total tonnage required to build 10.000 TWh generation capacity
Solar requires 17 times more mining than nuclear.
Mining has a huge carbon footprint.
180.000.000
160.000.000
140.000.000
120.000.000
100.000.000
80.000.000
60.000.000
40.000.000
20.000.000
0
164.470.000
102.600.000
52.610.000
9.300.000
Solar
Wind
Geothermal
Nuclear

Federal Electric Subsidies per Unit of Production

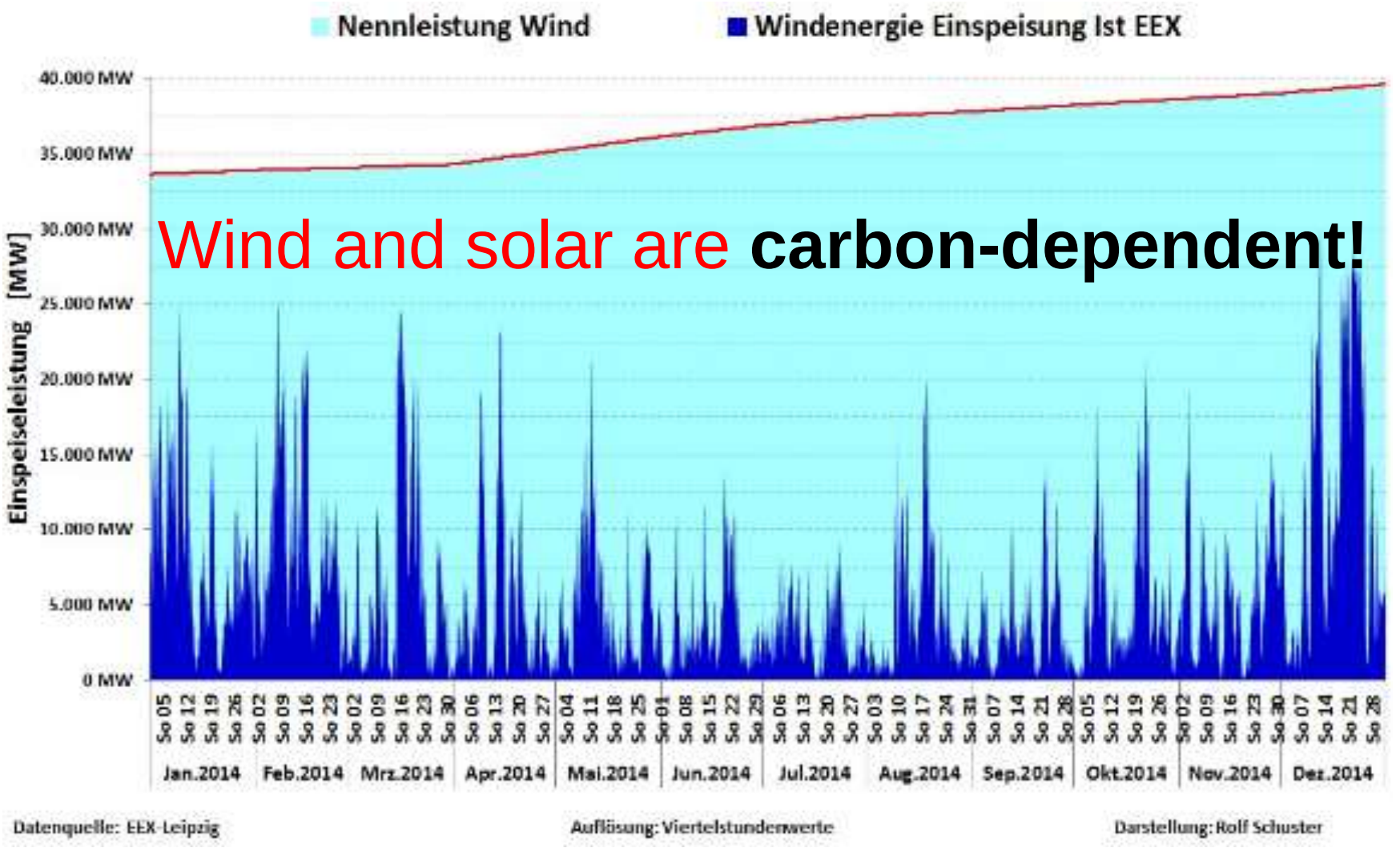
(2010 dollars per megawatt hour)





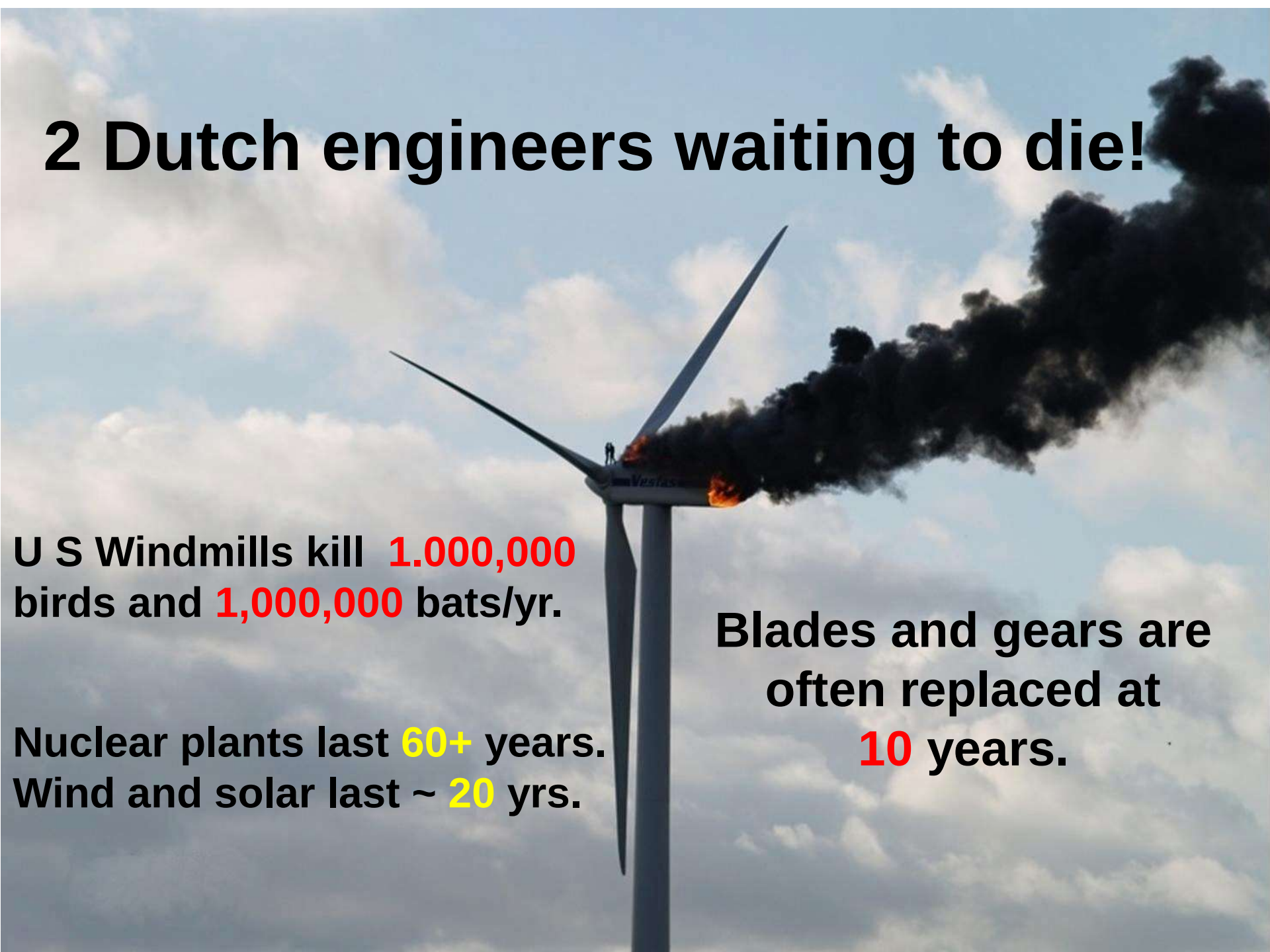
The projected subsidies are even worse!

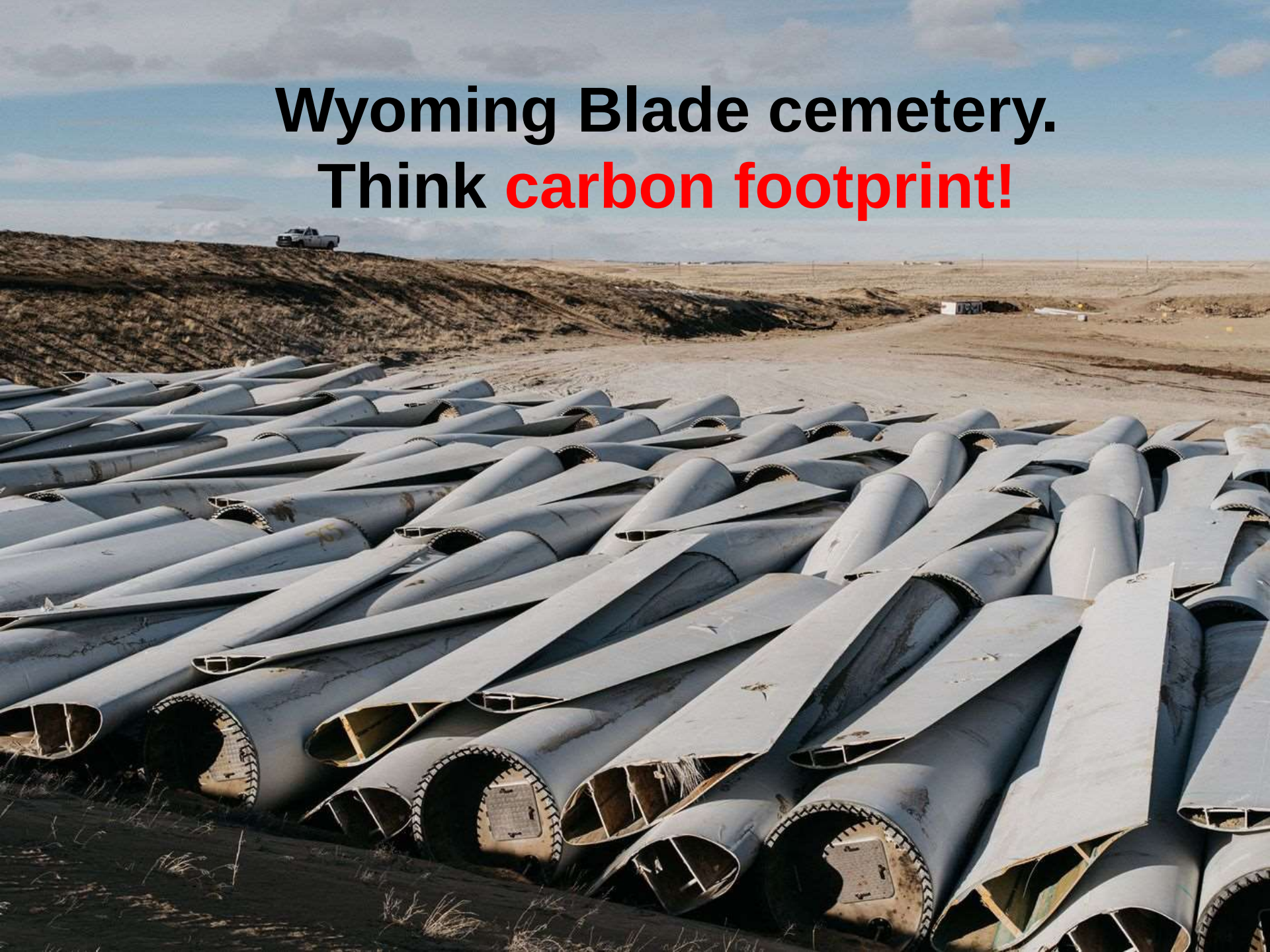
Oil + gas will receive 9 x more than nuclear!



Germans paid for the "plate rating" (the red line) but only got the blue spikes, so they make up the difference by burning coal, lignite or gas, which makes more CO_2.


Germany burns lignite – the dirtiest runt of the coal family.
CHRISTOF KOEPSEL


2 Dutch engineers waiting to die!
U S Windmills kill 1.000,000 birds and 1,000,000 bats/yr.
Nuclear plants last 60+ years.
Wind and solar last ~ 20 yrs.
Blades and gears are often replaced at 10 years.


Wyoming Blade cemetery.
Think carbon footprint!


Ivanpah”bird-broiler” cost more than $1.6 billion. Terminated due to gross inefficiency. Also Tonapah in NV!”

Michigan - Species displacement - These panels can get 50 degrees hotter than their surroundings.

Think Global Warming!


Panels must be recycled as hazardous waste at a cost of
~$30 per panel.
Panels contain toxic elements!

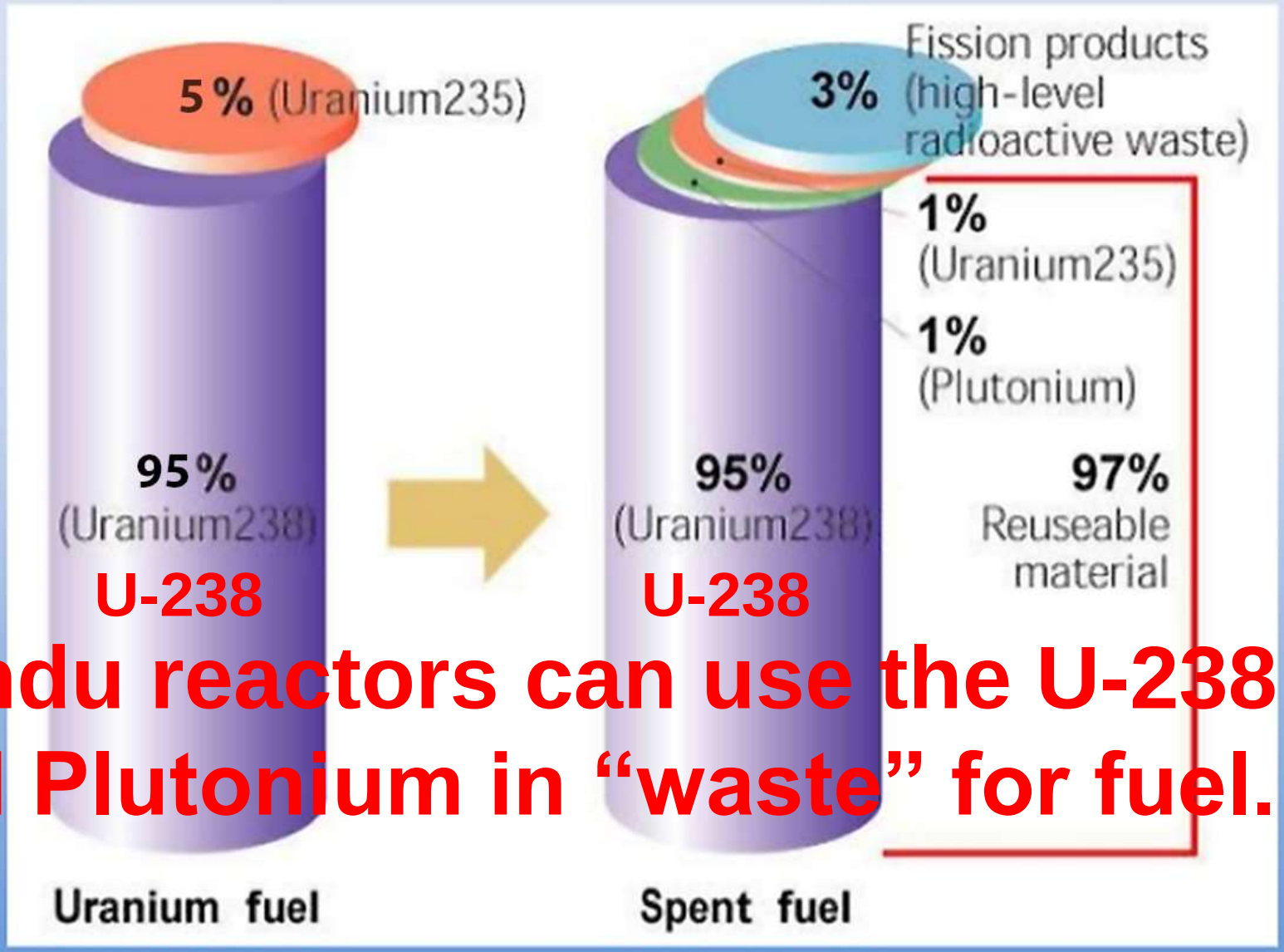

Immense pollution at Lake Baotou, China.
Rare earth mining for wind and solar


Species extinctions are rising, and we are on the list!.
Monoculture forests are replacing mixed forests that were home to thousands of species. Chips or pellets are sent to Germany.


Just one $3 pellet = 30,000
gallons of gasoline.

Used Nuclear Fuel Anatomy

Let's look inside



Candu reactors can use the U-238 and Plutonium in "waste" for fuel.


Our 70 years of U. S. spent fuel could be stored on 1 football field.
Workers do not need protective clothing.

Very

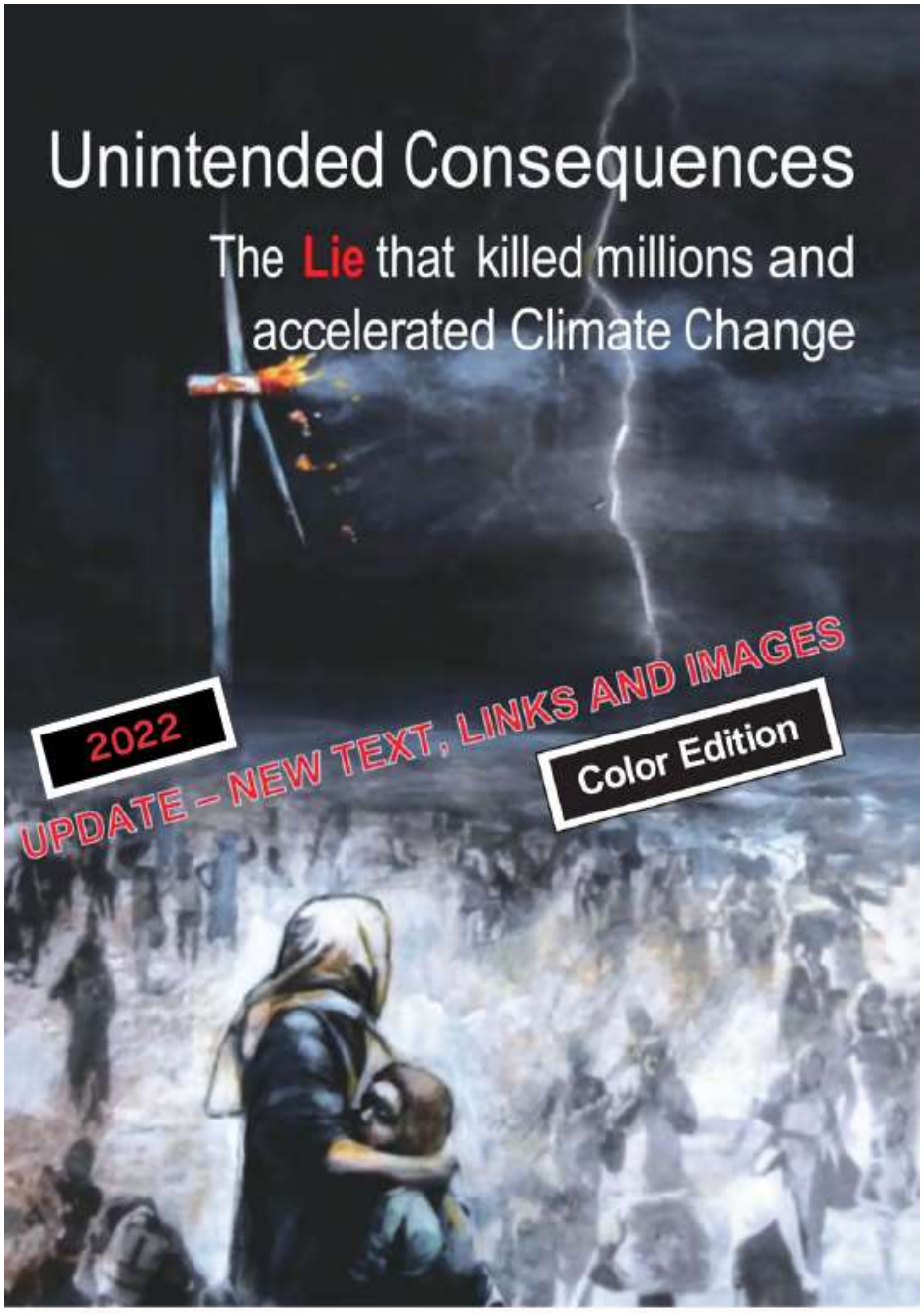

Greenjacked!
The derailing of environmental action on climate change
How anti-nuclear activists misused our love of nature to deliver us into the grip of coal and a deadly climate future
Geoff Russell
NO NUKS
But what about the waist!
climate change

Good!

Expanding safe, highly efficient, environmentally benign, resource sipping, long lived, 24/7, carbon-free nuclear power is our single most effective way to slow climate change – but we are foolishly expanding less-safe, intermittent, grossly inefficient, environment-wrecking, resource-gobbling, short lived, carbon-dependent wind and solar farms.

If we truly care for the environment and the species that depend upon it, we must **publicize** the science that proves the superiority of nuclear power. We must become active ambassadors for nuclear power by writing op-eds and offering presentations to colleges, schools and service clubs. **NOW!**

FREE from
tundra cub.com



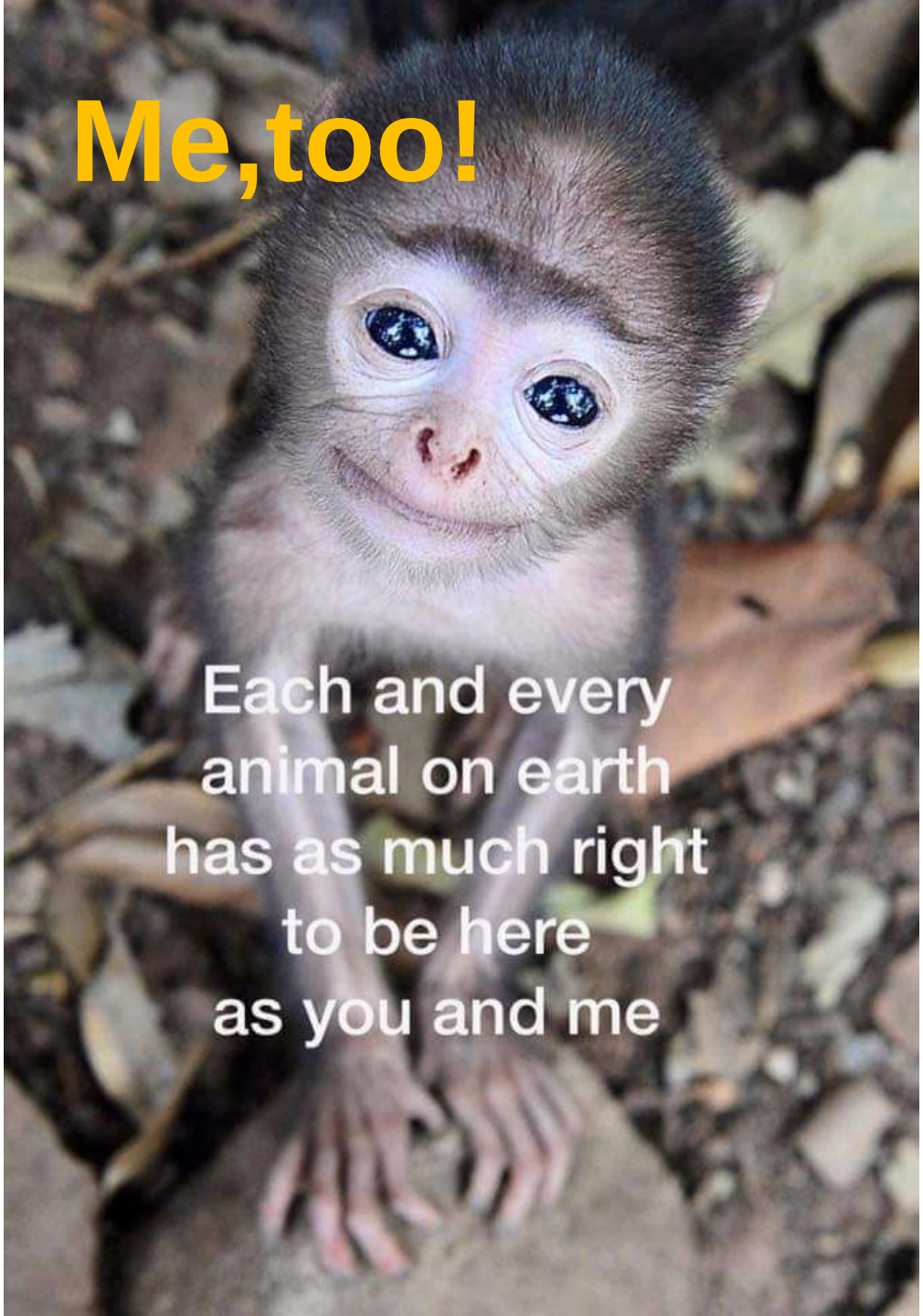
FREE from
tundracub.com

Download and forward the FREE August 2022 PDF of *Unintended Consequences* from the homepage of www.tundracub.com or request it from tundracub7@gmail.com.

Dr James Hansen, former Chief Climate Scientist at NASA – "Your writing is brilliant and so clear."

Cree saying - Only when the last tree has died, the last river has been poisoned and the last fish has been caught, will we realize that we cannot eat money.


I need your help.


Me,too!
Each and every
animal on earth
has as much right
to be here
as you and me