

Presentation to SA Parliament by SA Institute of Race Relations

IRR

On the Climate Change Bill 2022

Part 1: The Science and Technology.

By Andrew Kenny

gettyimages®
oversnap

My Qualifications in Climate Science

- Honours degree in physics and an honours degree in mechanical engineering (both from UCT).
- Six years studying thermodynamics, heat transfer and fluid mechanics, which are the fundamental disciplines of climate science.

The Key Questions about Climate Change

- 1: Is the climate changing?
 - **Yes. It is always changing. (Over billions of years.)**
- 2: Has the slight warming in the last 150 years been any different from previous natural warming periods?
 - **No. Nothing unusual, in magnitude or rate of change.**
- 3. Has mankind increased the CO₂ in the air since the 19th C?
 - **Yes. Mainly by burning fossil fuels we have increased CO₂ from about 280 ppm in the 19th C to about 430 ppm now (2023)**
- 3: Will rising rising CO₂ will have a dramatic effect on global temperatures?
 - **No. CO₂ is a feeble greenhouse gas, whose only significant absorption band (15 micron) is already saturated.**
- 4: In the past has CO₂ ever been seen to drive global temperatures?
 - **No.**
- 5: Is there any evidence to suggest that mankind is changing the climate in a dangerous way?
 - **No. (Including extreme weather events, rising oceans, polar ice caps etc)**
- 6. Will rising CO₂ have any other effects?
 - **Yes. It will improve plant growth, and is already doing so. The arid part of the world are greening. World food crops are getting better and better.**

All of this is backed by overwhelming scientific evidence and data

Scientific verdict on the Climate Change Bill 2022

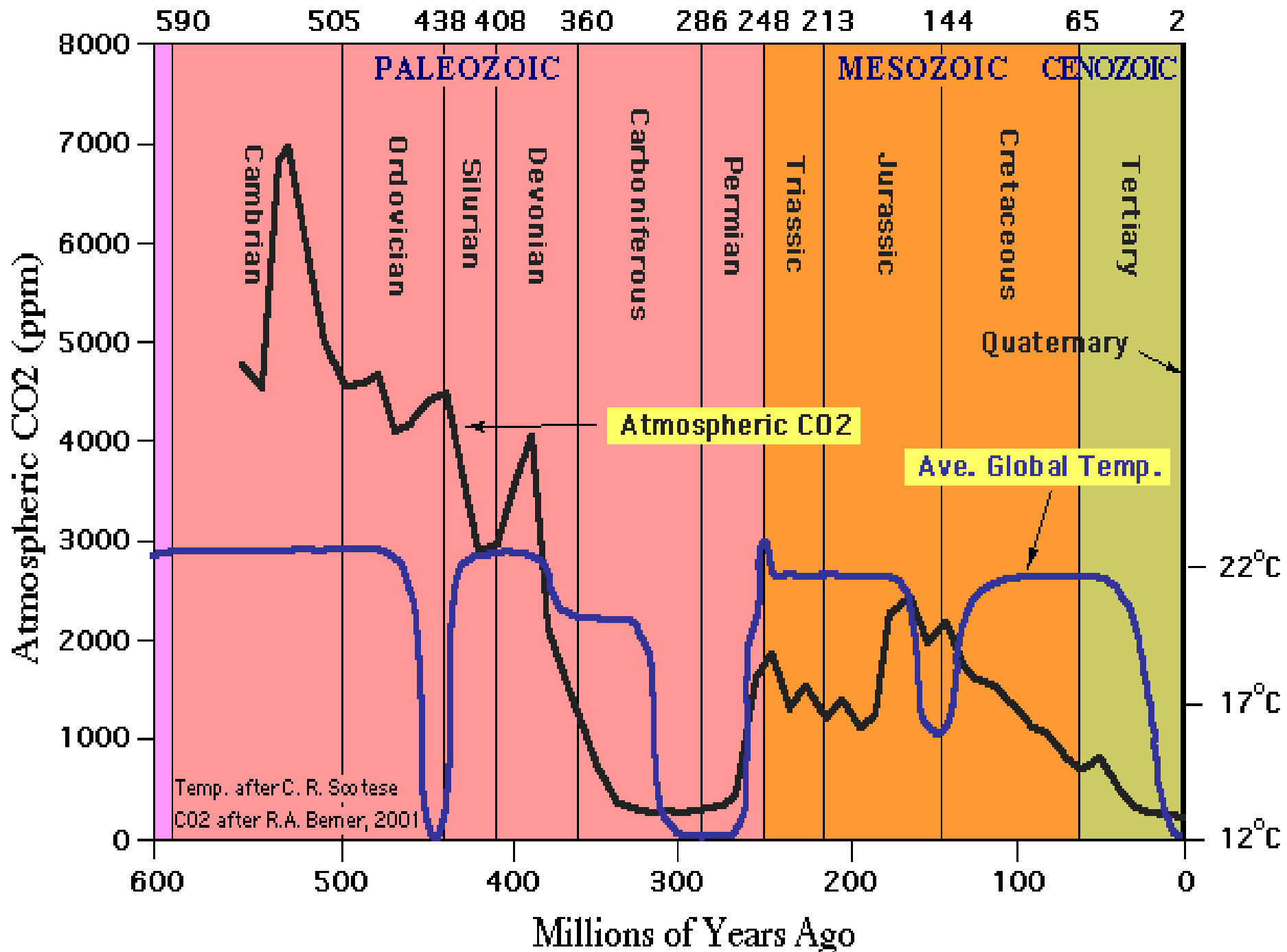
- The preamble gives the premise for the bill:
 - “AND WHEREAS anthropogenic climate change represents an urgent threat to human societies and the planet and requires an effective, progressive and incremental response; “
- This is completely wrong. It has no basis in science. Rising CO₂ (“anthropogenic” CO₂) presents no threat to human society or to the planet.
- Therefore the bill should be scrapped.
- If implemented as an act, it will do immense harm to our electricity supply and our economy, and will not help the environment at all.

Look at the real world not the models

- Computer “models” can be useful and give insights into certain systems but they have been abused in climate alarm.
- The Earth’s weather system is far too complicated to be modelled accurately. Most of the models are little more than guesses.
- There is a powerful vested interest in predicting climate disaster, which the modellers do
- Past alarming predictions (no ice at Arctic by 2013, sea levels rising steeply, runaway heating, end of the world etc) have been completely wrong.
- It is best to ignore climate models from the climate fear establishment. Look at what is happening in the real world instead.

Carbon Dioxide (CO₂)

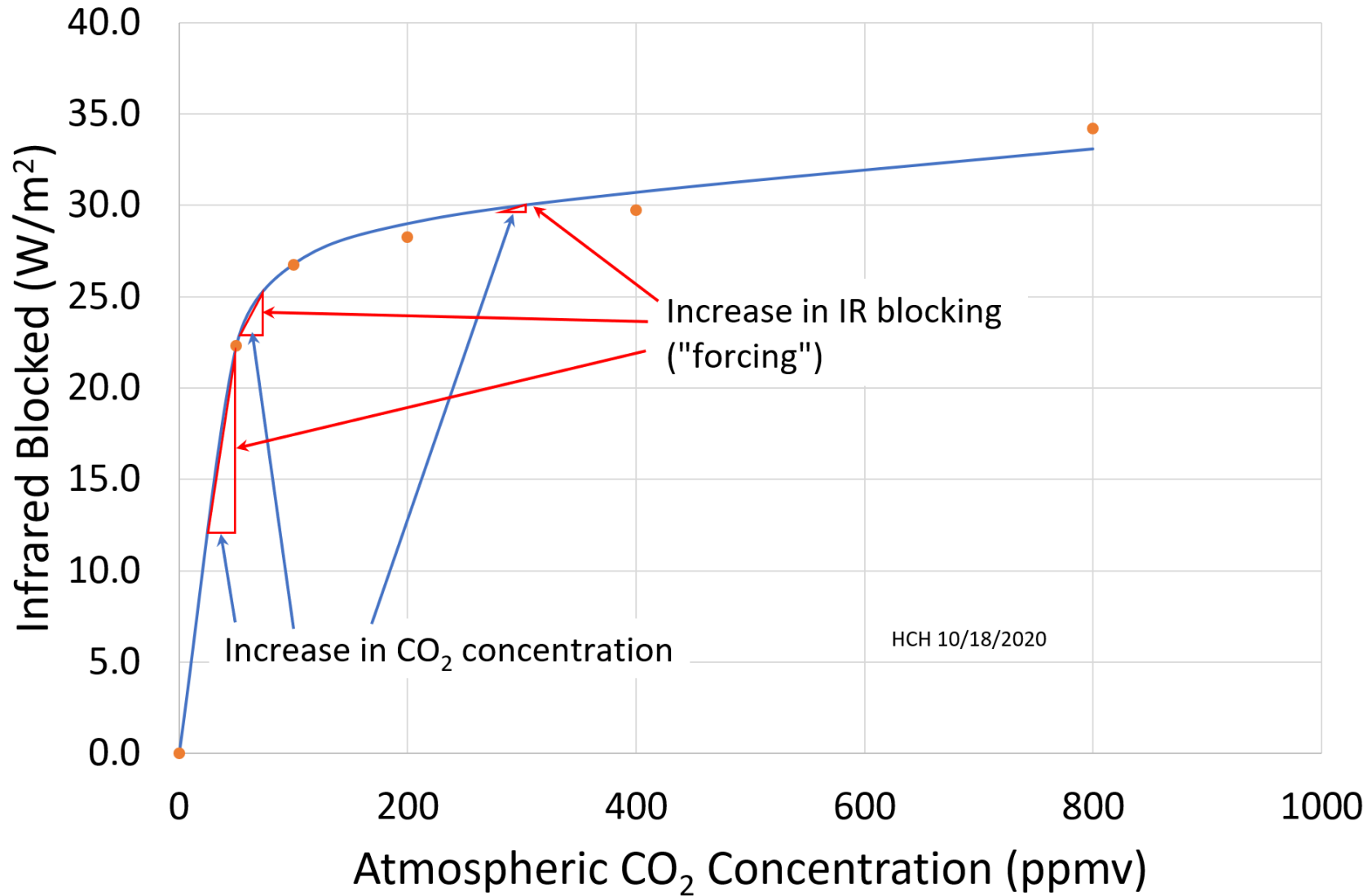
- CO₂ is NOT a pollutant!
- It is a wonderful, harmless, natural gas, essential for green plants and the animals that depend on them, including us.
- Raising CO₂ levels in the air will
 - Have little if no effect on the climate
 - make plants grow better (horticulturalists pump CO₂ into greenhouses)
- CO₂ levels are now extremely low in the life of the planet, far below optimum level for plants (probably about 1500 ppm).
- CO₂ is a weak greenhouse gas, with only one significant band in the Earth's radiation spectrum, at 15 microns.
- At present concentrations of CO₂, this band is already saturated at peak. All the 15 micron infra-red is already being absorbed.
- The only effect of adding more CO₂ is slightly to widen the band and to lower the height at which the 15 micron gets absorbed



Almost a low CO₂ catastrophe

- About 5 million years ago, CO₂ had dropped to dangerously low levels (about 280 ppm)
- During the recent ice age it has dropped to 180 ppm, probably the lowest in Earth's history.
- If it had dropped to 150 ppm, there would have been a catastrophic extinction of life on Earth. Most plants (C₃) would have died.
- When the ice age ended, rising ocean temperatures released CO₂ into the air.
- From about the 19th Century, humans released more CO₂ by burning fossil fuels (coal, oil, gas).
- It is the best thing we have ever done for the planet.

IR Blocking by CO₂

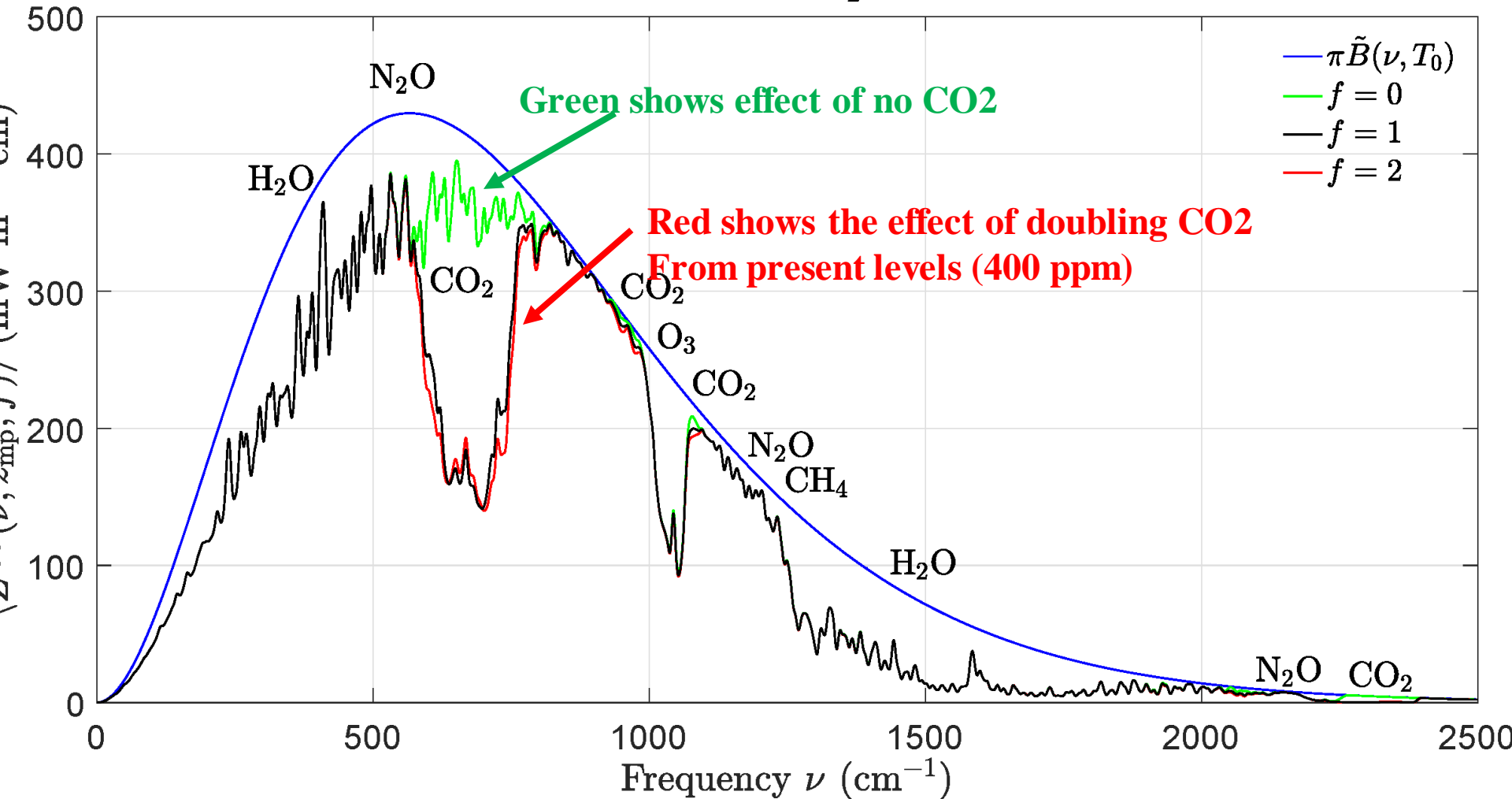


HCH 10/18/2020

The *total* heat retention from all atmospheric causes combined is 150 W/m².

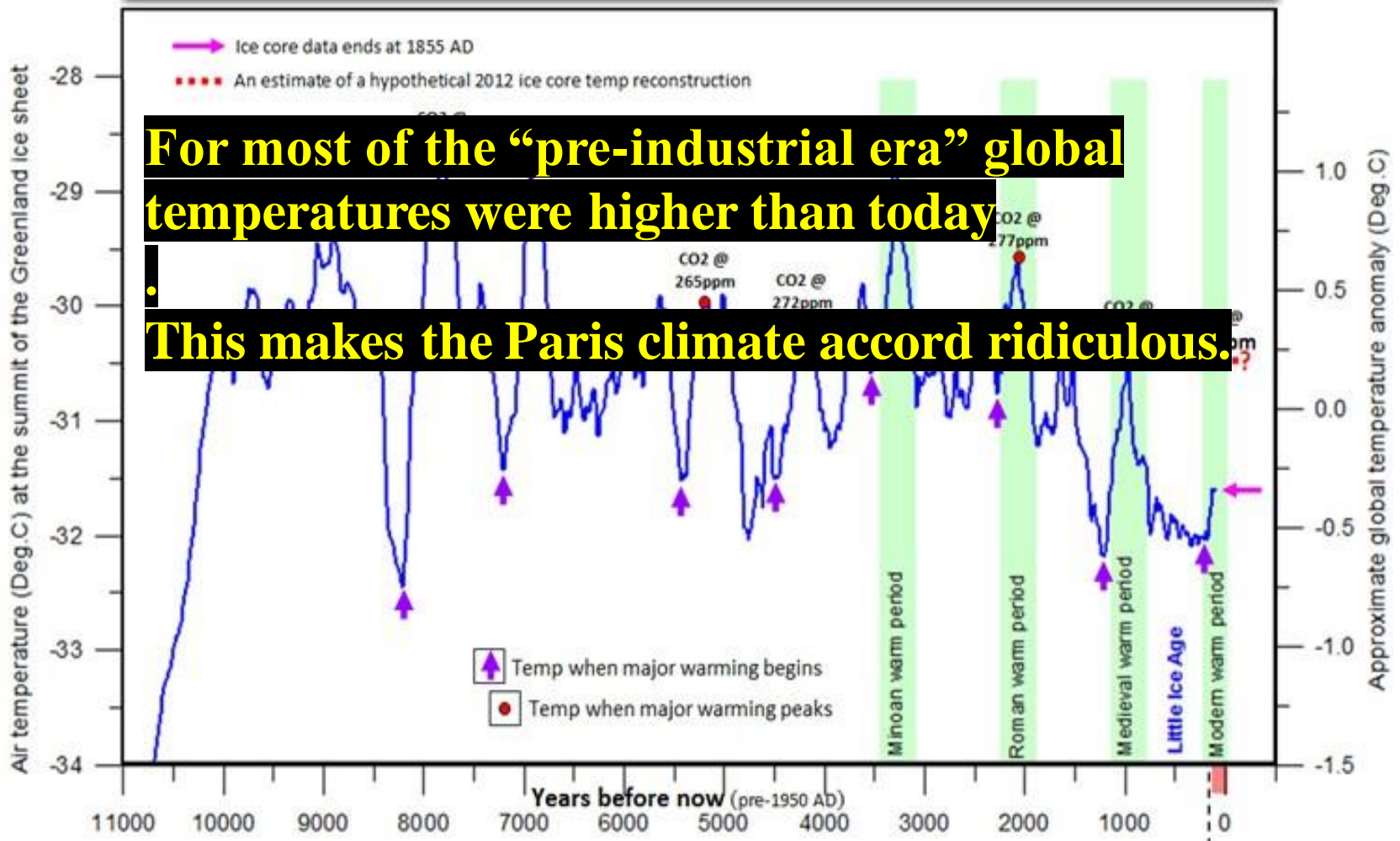
Infrared absorption by greenhouse gases

$i = \text{CO}_2$



Arctic Region: Extreme Climate/Temperature Change Prior To Human CO2

Over 10,000 years of extreme variation documented via Greenland ice core scientific research



Mediaeval Warm Period (MWP) & Little Ice Age (LIA)

- Mediaeval Warm Period (about 900 to 1200 AD)
 - Temperatures rather higher than now (while CO₂ was lower than now)
 - Golden Age of agriculture in Europe
 - Good health
 - Viking colony on Greenland
 - Vineyards in north of England
- Little Ice Age (1400 to 1850 AD)
 - Lowest temps of last thousand years
 - Vikings abandoned Greenland
 - Worse weather extremes than now: storms, floods, droughts
 - Poor crops, famines
 - Plague, ill health
 - Malaria decimated Europe (6 mentions in Shakespeare's plays)
 - Witch-burning of 16th & 17th Centuries?
- Both were worldwide (Europe, Asia, Africa, North America, South America, Australia), confirmed by hundreds of scientific studies & historical record.
- For over 1000 studies on the MWP, see
 - <http://www.co2science.org/data/mwp/mwppp.php>

AN
Exact and lovely Map
 OF
 REPRESENTATION
 OF
Booths and all the varieties of Shows and
Amusements upon the ICE on the River of
 THAMES by LONDON
During that memorable Frost in the 35th year
of the Reigne of our Sacred Majesty
 King CHARLES the 2^d
— June 17th 1683.

With an Alphabetical Explanation of the
most remarkable Figures



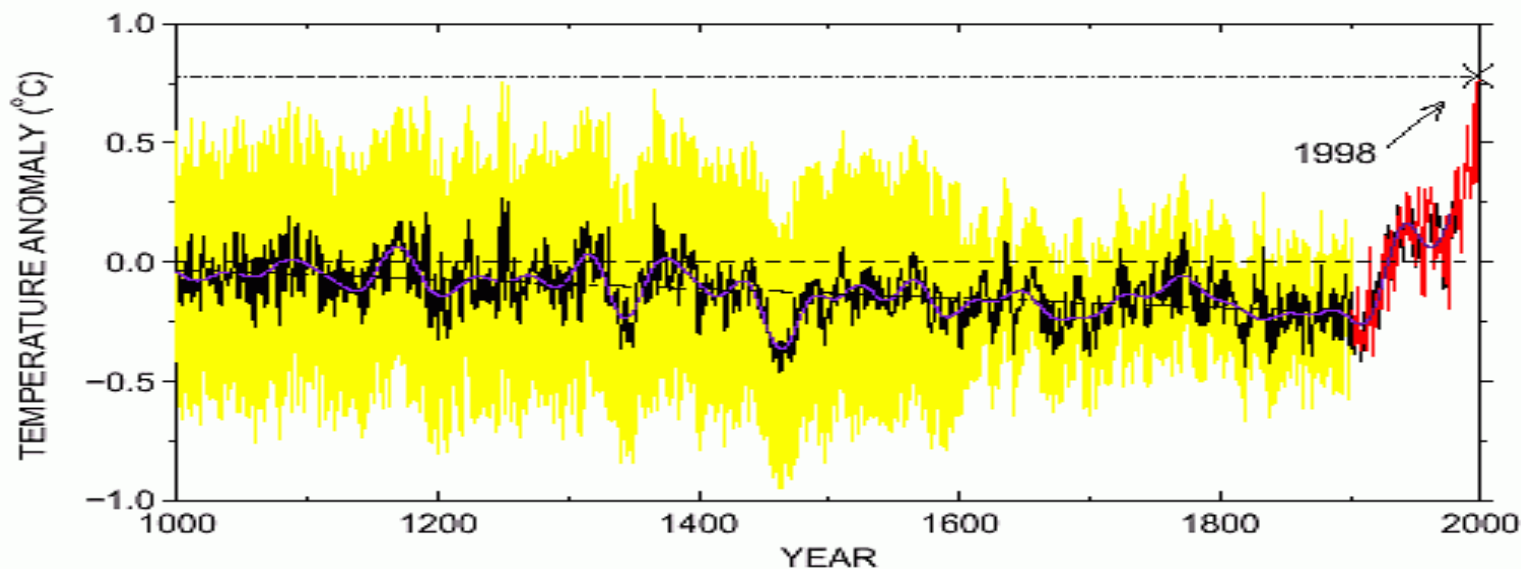
*The Temple Stairs with People going upon the Ice to Temple stairs A. The Duke of York's Coffee house B. The Toy Booth C. The Booth with a Phoenix on it and Inward
 as long as the London Stairs D. The Boat Boat Booth E. The Boat Boat Booth F. The Boat Boat Booth G. The Boat Boat Booth H. The Boat Boat Booth I. The Boat Boat Booth
 Booth K. The Boat Boat Booth L. The Boat Boat Booth M. The Boat Boat Booth N. The Boat Boat Booth O. The Boat Boat Booth P. The Boat Boat Booth Q. The Boat Boat Booth R. The Boat Boat Booth S. The Boat Boat Booth T. The Boat Boat Booth U. The Boat Boat Booth V. The Boat Boat Booth W. The Boat Boat Booth X. The Boat Boat Booth Y. The Boat Boat Booth Z.*

Frost Fair: Thames London, 1683

Some nonsense from the Climate Alarm Establishment

The **IPCC** (Intergovernmental Panel on Climate Change) is NOT a scientific body. It is a political advocacy group with a powerful vested interest in spreading climate fear. It has suffered scandal after scandal

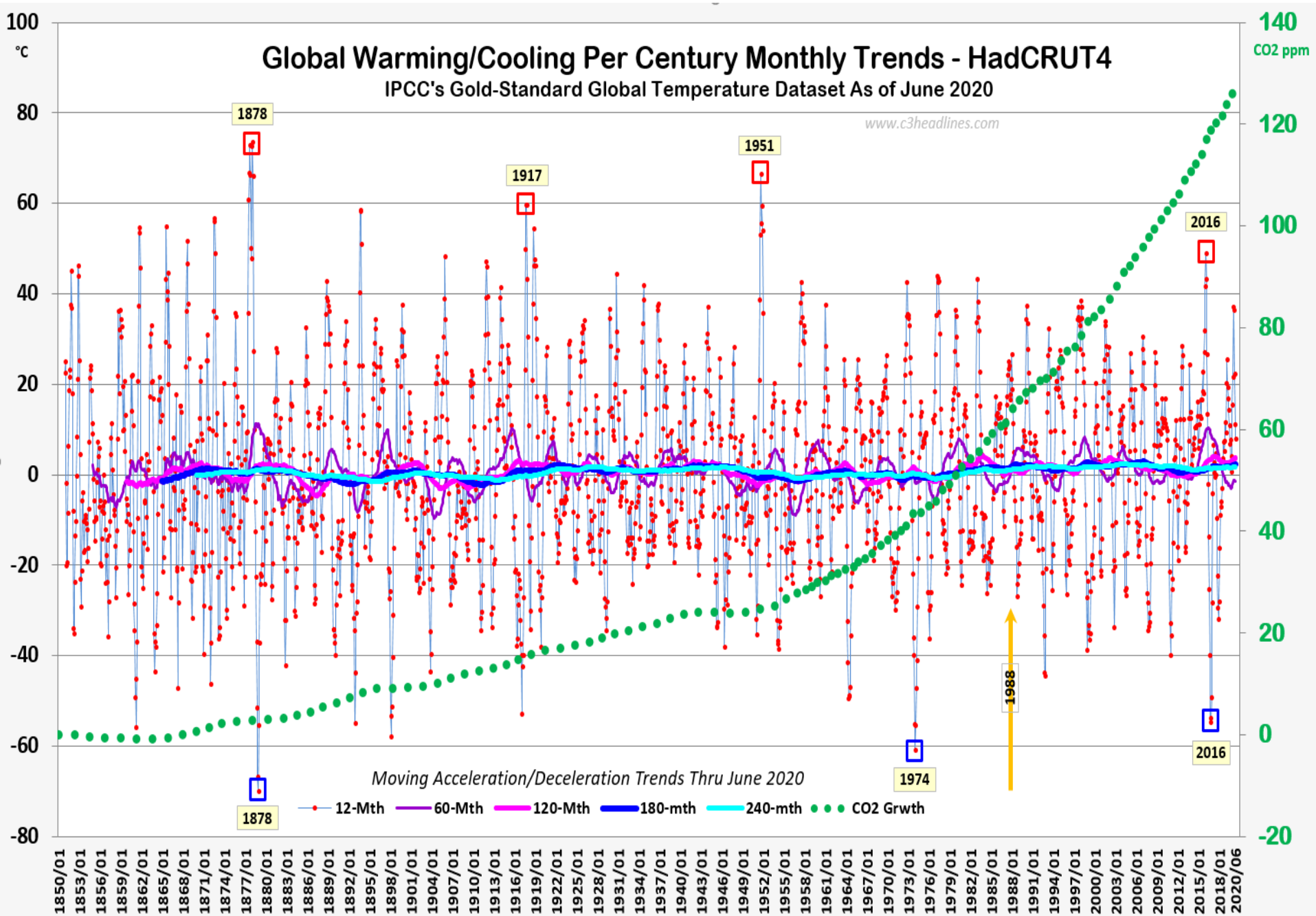
In its 2001 report, it published (6 times) this “Hockey Stick” nonsense



This false graph has been completely repudiated. I can give details.

The absurd claim that “97% of scientists” believe in dangerous manmade climate change has also been exposed as utter nonsense.

Global temperatures & CO2: 1850 to 2016



The Sun – not CO2 drives global temperatures

- There is no correlation between CO2 and global temperatures over long periods.
- There is a close correlation between solar activity and global temperatures.
- Solar activity here refers to changes in the Sun's electromagnetic activity NOT in its total energy output (total solar irradiation).
- I can explain the likely mechanism

No increase in extreme weather events

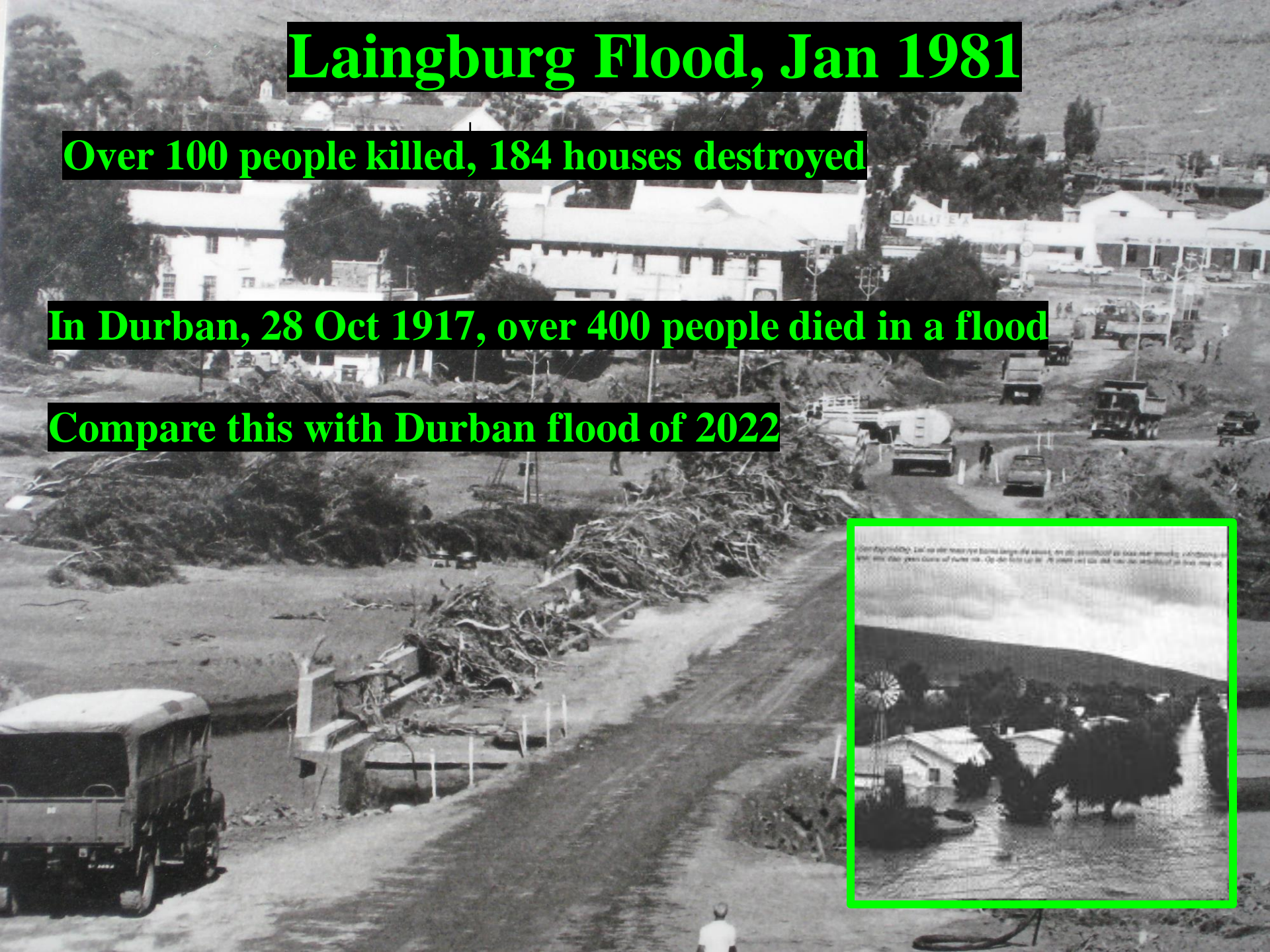
- Extreme weather happens in all ages.
- In the last 50 years or more there has been no increase in extreme weather events (severity and frequency including:
 - Floods, droughts, storms, hurricanes, cold, heat
- As you would expect, the colder the climate the more extreme weather events
 - Just look at the horrid Little Ice Age

Laingburg Flood, Jan 1981

Over 100 people killed, 184 houses destroyed

In Durban, 28 Oct 1917, over 400 people died in a flood

Compare this with Durban flood of 2022

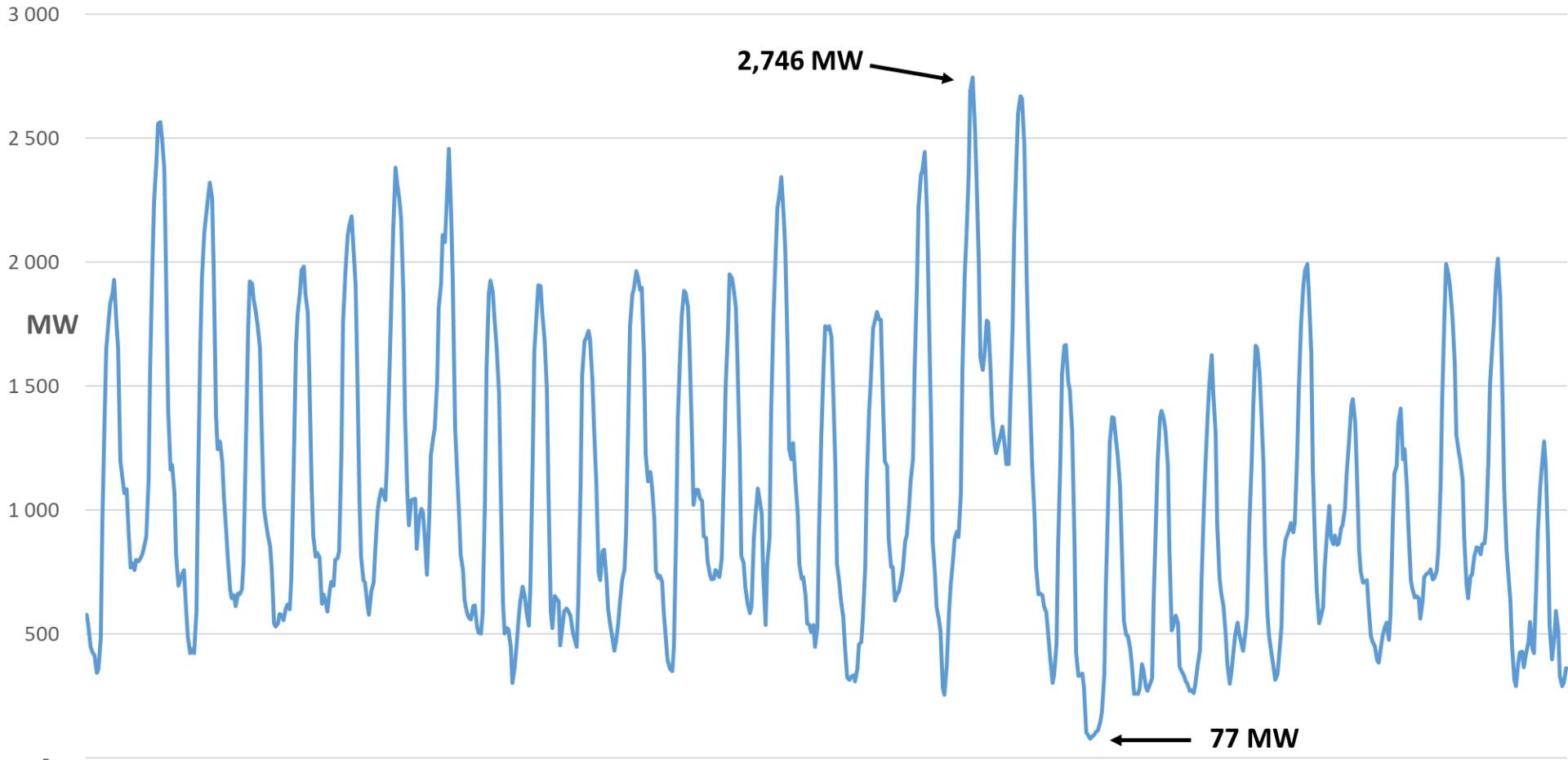


Solar and wind are ruinously expensive

- Solar and wind (“renewables”) are good off-grid but useless for the grid.
- Unreliable and intermittent, they are *by far* the most expensive source for useful electricity for the grid. The cost of useful electricity (dispatchable electricity) is known as the Full Cost of Electricity (FCOE)
- Wind and solar can provide useless electricity fairly cheaply (except in SA until recently) but their FCOE it is horribly expensive, requiring:
 - Back-up generators, spinning reserve, generators running inefficiently to match the fluctuations of wind and solar, compensation for loss of electrical inertia, extra controls, storage and extra transmission lines.
- This explains why the final price of electricity from wind and solar keeps going up and up as the greens are telling us that it is going down.
- Every country that has tried wind and solar for the grid, including Germany, Denmark, the UK, the US and Australia (especially South Australia) has seen final electricity prices soaring and failures increasing.
- Our own renewable program, REIPPPP, begun in 2013, has been an utter failure, as you can see by the production graphs.

Solar & wind production. May 2019. Total capacity: 4,054 MW

Source: Eskom



Solar and wind need gigantic machines

Requiring huge amounts of raw materials

Leaving vast amounts of wastes, some toxic, lasting millions of years (worse than nuclear waste)

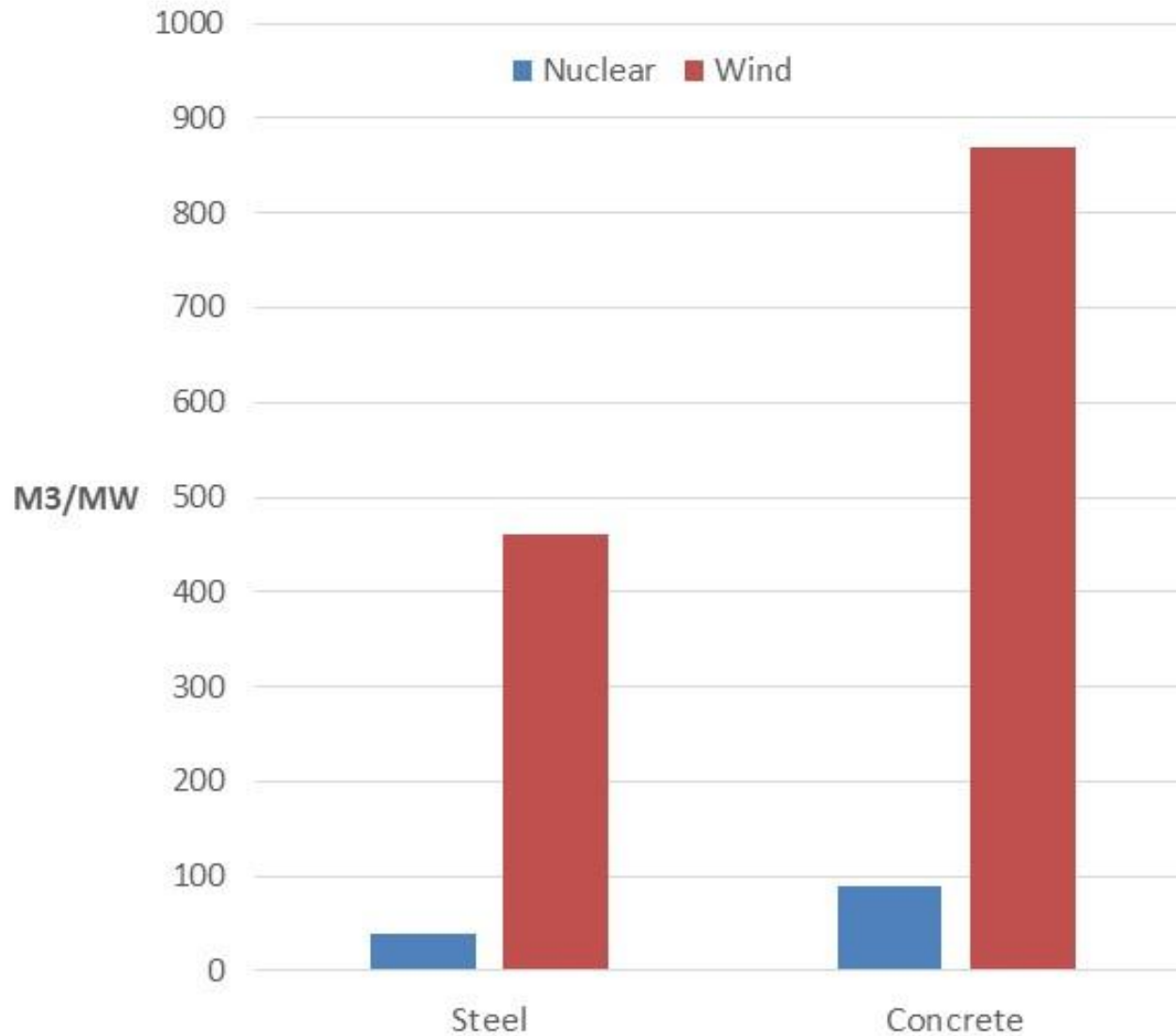
But producing very little electricity – and unreliable too



**Black Law windfarm.
South Lanarkshire, Scotland**

Concrete & Steel for Nuclear & Wind

Per F. Peterson, Haihua Zhao, and Robert Petroski, University of California, Berkeley.
Report UCBTH-05-001.2005



Energy out, energy in

- You must use energy to build a power station (construction, manufacture, earthworks, fuel processing etc).
- Compare that with the energy you get out of it (from generating electricity).
- The best ratios of energy out over energy in are from hydro and nuclear.
- The worst is from solar.

ENERGY IN/ENERGY OUT

LIFE CYCLE ENERGY REQUIREMENTS FOR POWER PLANTS

UIC Nuclear Issues Briefling Paper 57. July 2001

Generation Technology	Type	Energy in as % of lifetime output	Energy ratio (output/input)	Source
Hydro		2	50	Uchiyama 1996
		2.3	43	Held et al 1977
Nuclear		1.7	59	ERDA 76/1, Appendix B
(centrifuge enrichment)	PWR/BWR	1.7	59	Kivisto 2000
	PWR/BWR	1.3	76	Uchiyama 1996
	PWR	2.2	46	Inst. Policy Science 1977
	BWR	2.3	43	Inst. Policy Science 1978
	BWR	2.1	47	Uchiyama et al 1991
Coal		3.5	28.6	Uchiyama et al 1992
		5.9	16.9	Uchiyama 1996
		6	16.8	Uchiyama et al 1991
		7	14.2	Inst. Policy Science 1977
Natural Gas	Pipe	3.8	26.3	Kivisto 2000
	LNG	17.9	5.6	Uchiyama et al 1991
	LNG	16.7	6.0	Uchiyama 1996
Solar		9.4	10.6	Held et al 1997
	PV rooftop	11.1	9.0	Uchiyama 1996
	PV utility	20	5.0	Uchiyama 1996
	amorph.sil.	27	3.7	Kivisto 2000
Wind		8.3	12.0	Resource Research Inst. 1983
		16.7	6.0	Uchiyama 1996

Renewables cannot be localised

You can only build a solar power station in good solar conditions, such as the Northern Cape, which is hundreds of km away from the centres of demand. So you have to build very expensive transmission lines from the N Cape to Gauteng.



Same with wind. But you can build nuclear wherever you want. Nuclear can be localised.

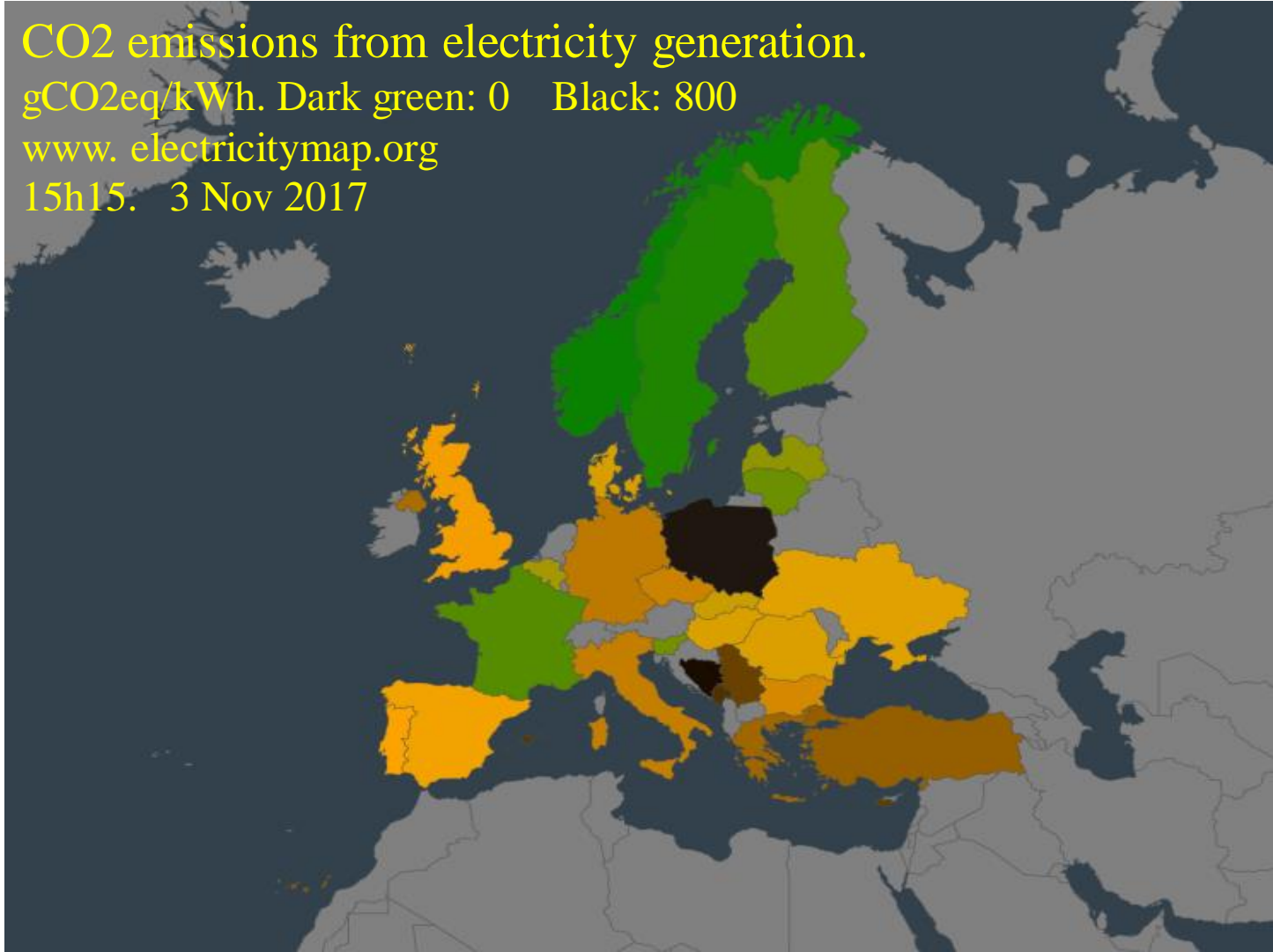
Solar and wind don't even reduce CO2 emissions.

CO2 emissions from electricity generation.

gCO2eq/kWh. Dark green: 0 Black: 800

www.electricitymap.org

15h15. 3 Nov 2017



SA's best energy sources

- Nuclear is best (safest, cleanest, reliable, affordable) but it will take time to build.
- Coal has served us well but it is dirty (SO_x, NO_x, smoke, heavy metals) and all the coalfields are in the north east.
- Solar and wind are useless (for the grid). Their FCOE is ruinously high and they use massive amounts of raw materials.
- Gas is a good, reliable fuel and should be considered seriously, including the powerships, which we can get quickly.
- Hydro is good but SA is a barren country, with no scope for more hydro.

The “Just Energy Transition” is Unjust and Unnecessary

- JET is based on the assumption that rising CO₂ is changing the climate in a dangerous way. It isn't.
- JET wants us to replace cheap, reliable electricity with expensive, unreliable electricity (wind and solar)
- If we implemented JET, it would ruin our energy supply, cripple our economy and harm our poor people.
- JET must be abandoned.



Thank You

Andrew Kenny. IRR