CLIMATIC CATASTROPHE & THE GREEN ENERGY REVOLUTION (PART 2)

Dr. Eddy Lee
有線電視財經資訊台
逢星期六晚上七點三十分
日本電視台NHK 攝製的
《狂暴天地》
（THE RAGING EARTH）
https://www.facebook.com/DrEddyLee/?fref=ts
正確地認識問題，
是解決任何問題的第一步！
人類自救，刻不容緩！

喚醒60億隻青蛙

全球暖化內幕披露

知名科普作家
李逆熵 著

為了您和您的子女，
您必須知道的事實與真相——

全球暖化的危機有多嚴峻？
「回饋作用」如何會令情況超出科學家的預料？
經濟學教學如何妨礙著問題的解決？
甚麼是「氣候公義」？
何謂「綠色革命」？
個人可以做些甚麼？

And 600 + slides...
1827

Joseph Fourier:

“Greenhouse Effect” of the atmosphere makes the Earth warmer than it should be (i.e. based on the radiation it receives from the Sun)

If not for this effect, the average global temperature will be around \(-18\) degrees Celsius instead of the current 15 degree Celsius!
1895

Svante Arrhenius:

(1) A major cause (1/3) of the “Greenhouse Effect” is CO2;
(2) The injection of increasing amounts of CO2 into the atmosphere by mankind since the Industrial Revolution (resulting from the burning of huge amounts of coal) has the potential of raising the temperature of the Earth.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1850</td>
<td>~280 ppm (parts per million) (from indirect evidence such as air bubbles in ice, tree rings, lake sediments etc.)</td>
</tr>
<tr>
<td>1957</td>
<td>International Geophysical Year (IGY)</td>
</tr>
<tr>
<td>1958</td>
<td>First direct measurement at Mauna Loa, Hawaii: 315 ppm (a 12.5% increase)</td>
</tr>
</tbody>
</table>
The Keeling Curve

Atmospheric Carbon Dioxide
Measured at Mauna Loa, Hawaii

IPY III
1957-58

IPY IV
2007-09

Carbon dioxide concentration (ppmv)


Annual Cycle
Jan Apr Jul Oct Jan

310 320 330 340 350 360 370 380 390
In the early 1970s, when astronomers learnt that the surface temperature of Venus is much higher than expected (~ 500 degrees!), people realized for the first time the potentially disastrous effect of a “Runaway Greenhouse Effect”.

Alarms were sound that Earth could become another Venus if we continue to pour huge amounts of CO2 into the atmosphere.
In the 1970s, based on their study of past Ice Ages, a number of climatologists were warning that the “Inter-Glacial Period” we have been enjoying over the past 13,000 years is ending, and Earth is moving into another Ice Age.

And - global average temperature decreased by 0.4 degree between 1940 -1970!
A scientist in the Goddard Institute for Space Studies (GISS) specializing in atmospheric science.

1981 A landmark paper published in Science: “Climate Impact of Increasing Atmospheric Carbon Dioxide”
1 June 1988  Warning raised in a US Congressional hearing, urging decisive action to curb the rise in atmospheric CO2
The Intergovernmental Panel on Climate Change (IPCC) was set up jointly by World Meteorological Organization (WMO) and the United Nations Environmental Programme (UNEP).

1990

The First Assessment Report (1992 supplementary report)
1992 A United Nations Framework Convention on Climate Change (UNFCC) was created at the Earth Summit Meeting held at Rio de Janeiro.

Setting up of the National Greenhouse Gas Inventory, but otherwise no binding effect.
The rate of CO2 emission by humankind is now > 50% higher than the rate by which Nature can absorb the gas

→ concentration of CO2 in the atmosphere is increasing

Either we reduce the Source, or we increase the Sink
<table>
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<tr>
<td>1995</td>
<td>IPCC Second Assessment Report</td>
</tr>
<tr>
<td>1997</td>
<td>Kyoto Protocol (京都議訂書) - but not signed (ratified) by USA, UK and Australia!</td>
</tr>
<tr>
<td>2001</td>
<td>Third Assessment Report</td>
</tr>
<tr>
<td>2005</td>
<td>Kyoto Protocol comes into effect</td>
</tr>
</tbody>
</table>
Bill Clinton: US representative signed the Protocol in Dec 1997, but Clinton did not send it to Congress for ratification.


Up till recently, USA accounts for 25% of global emission with just 5% of the world’s population. (Currently reduced to ~20%, not because of any emission reduction, but because the rising emission of developing countries (esp. China & India)

In terms of total emission, China has surpassed USA in 2008…[But what does that imply?]
an inconvenient truth
the crisis of global warming
AL GORE
2007 OSCAR AWARD – BEST DOCUMENTARY
2500+ Scientific Expert Reviewers
800+ Contributing Authors and
450+ Lead Authors from
130+ Countries
6 Years Work
1 Report

2007

The IPCC 4th Assessment Report is coming out
A picture of climate change
the current state of understanding
IT IS 5 MINUTES TO MIDNIGHT

The threat of a second nuclear age and the expected consequences of climate change push the Doomsday Clock closer to midnight.
An Inconvenient Truth

The Myth of Global Warming

...using a lie to transfer the jobs of America to the third world...and control the flow and price of crude oil

By Jon Christian Ryter

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He wants a carbon tax and the elimination of all fossil fuels in 10 years, inflicting economic pain on consumers.

Al Gore is the Joker.
THE DENIAL MACHINE
The Scientific Method

Here are the facts. What conclusions can we draw from them?

The Denialist Method

Here’s the conclusion. What facts can we find to support it?
“Man-made global warming is the greatest hoax ever perpetrated on the American people.”

- US Senator James Inhofe

2003
The INTENSIVE "WHO CARES?" UNIT
PROUDLY PRESENTS:
Save the Kyoto Protocol!

THE TEMPERATURE GOES UP!
GIVE HER MORE OXYGEN AT ONCE!

The Kyoto Protocol
CO₂
SIMPLY BRILLIANT!
- EXXON MOBIL

THE BEST LITERARY WORK SINCE SHAKESPEARE!
- SHELL

WE'LL BUY A GAZILLION BOOKS.
- THE KOCH BROS.

THE WORLD'S FOREMOST SCIENTIST, JIM INHOFE, SURE CONVINCED US!
- SAUDI ARABIA

HE'S GOT OUR VOTE FOR KING OF THE WORLD!
- BP

RIVALS "DICK AND JANE."
- AL GORE

THE GREATEST HOAX
BY
SEN. JIM INHOFE
CENSORING SCIENCE

INSIDE THE POLITICAL ATTACK
on Dr. James Hansen
AND THE TRUTH OF
Global Warming

Global Warming Is A Hoax.*

* Or so claim well-funded naysayers who still reject the overwhelming evidence of climate change. Inside the denial machine. By Sharon Begley
A REPEAT OF THE TOBACCO INDUSTRY’S COVER-UP.....ONLY 100 TIMES BIGGER!
97% of climate scientists’

“Global warming is real and man-made.”

James Inhofe (R–Okla.)

“Global warming is a hoax.”

WHO SHOULD YOU BELIEVE?

THE PEOPLE WHO STUDY IT, OR THE GUY WHO’S TAKEN OVER $1.3MILLION FROM BIG OIL & GAS?
AND THEN I TOLD THEM

"SURE, WE SUPPORT SUSTAINABILITY"
PROPOSED CARBON TAX

TAX-PAYERS

POLLS

HOW TO LOSE AN ELECTION...
‘Anyone concerned about the state of democracy in America should read this book.

AL GORE

MERCHANTS OF DOUBT

HOW A HANDFUL OF SCIENTISTS OBSCURED THE TRUTH ON ISSUES FROM TOBACCO SMOKE TO GLOBAL WARMING

NAOMI ORESKES & ERICK M. CONWAY
The Lamentable “Copenhagen Accord”
AR5 PROJECTIONS

Business-As-Usual Scenario:
By 2100,
- Average Global Temperature will rise by 4.8 degrees; and
- Mean Sea Level will rise by 98 cm

BUT most scientist contend that these are too conservative!
過去一百年全球海平面已經上升了20厘米。
而且近年的上升速度正在增加…
5 cm rise just in the last 20 years!
A DESPERATE MEASURE – THE AGREEMENT BETWEEN TUVALU AND NEW ZEALAND
NOBODY CAN ESCAPE THE DISASTROUS IMPACTS .....
THE MORE IMMEDIATE AND INSIDIOUS EFFECTS...

INCREASED SALT WATER INTRUSION INTO SURFACE AND GROUND WATER – ALONG COASTAL REGIONS AND ON ISLANDS
PLUS COASTAL EROSION AND STORM SURGES...

Mean sea level

Surge 15 ft.

1.7 ft. Storm tide

2 ft. Normal high tide
AND WITH THE MELTING OF ICE ALL OVER THE WORLD....
春天高山冰雪融化
導致河流泛濫洪水
為禍
高山冰雪融化最终则导致河流枯竭...
WATER SCARCITY, FOLLOWED BY FOOD SCARCITY.... THE VAST EXPANSION OF IRRIGATED AGRICULTURE IN THE LAST 50 YEARS.
THE THREAT OF DISAPPEARING AQUIFERS
氣候變遷所帶來的可怕後果之一：沙漠的蔓延
二十一世紀將是「瘟疫世紀」？

- 大量熱帶疾病向溫寒帶描蔓延。
- 大量變種的細菌和病毒出現。
蟲害四起：農、林業遭殃
全球蜜蜂数量下降对农业的打击
等待著我們的還有...

特大熱浪、特大山火、
特大暴雨、特強風暴、
洪水、大旱、雪災...
OTHER EFFECTS OF GLOBAL WARMING

- Changes in Rainfall Pattern – unexpected droughts and floods
- Increase in Extreme Weather Events
MORE INTENSE HURRICANES AND STORM SURGES
GLOBAL WARMING MAY LEAD TO MORE SEVERE EL NINO EVENTS – MORE WEATHER ANOMALIES

2015/16 a strong El Nino year!
“If carbon dioxide continues to rise unchecked, computer models show that acidification will deplete carbonate ions in much of the ocean by 2100, turning the waters corrosive for many shell-building animals.”

www.nationalgeographic.com
The Disaster of Coral Bleaching

~ 1/3 of the world’s coral reef has already been severely damaged
水源危機、糧食危機、瘟疫危機、「氣候難民」, 「氣候戰爭」
HELP US
WE ARE IN THE MIDST OF ....

THE SIXTH EXTINCTION
MASS EXTINCTION OF SPECIES – OUR CRIME AGAINST NATURE

THE SIXTH EXTINCTION
AN UNNATURAL HISTORY

Author of Field Notes from a Catastrophe
ELIZABETH KOLBERT

Number of species dying out per year

1700 1800 1900 2000

1 10 100 1,000 10,000 100,000
THE PERMAFROST TIMEBOMB...
The Tundra --- Melting

Houses undermined by melting Permafrost
NATURE’S WAKE-UP CALL!
HUGE SINKHOLES APPEARING IN THE SIBERIAN TUNDRA
Updated Map of Tipping Elements in the Earth System
IN NATURE, THERE'S SOMETHING CALLED “TIME LAG”...
Because of the long residence time of CO2 in the atmosphere and the time lag effect, the climactic impact of the additional CO2 will continue and last up to thousands of years EVEN IF WE STOP ANY EMISSION OF CO2 RIGHT NOW!

The latest finding: The Next Ice Age has been CANCELLED!
According to paleoclimatological and geological studies, for each 1 degree rise in Earth’s mean temperature, the sea level rose by **10 to 20 meters**! So IPCC’s forecast of say, 5 degrees rise in temperature would translate into **a 50 - 100 meters rise in sea level**!
NON-LINEARITY IN NATURE

“Tipping Points” and threat of Abrupt Climate Change:
THE NEED TO STABILIZE AT **450 PPM** (EQ. TO A FURTHER 2 DEGREES RISE IN TEMPERATURE FROM PRE-INDUSTRIAL LEVEL) → To avoid triggering any “tipping points”
The Science of 350

WE'RE HERE: 387 ppm

WE NEED TO BE HERE: 350 ppm

Atmospheric CO2 Concentration (PPM)
(Measured at Mauna Loa, Hawaii)

Year

1960 1970 1980 1990 2000...
350HK.ORG

Est. Sept 2015

http://350hk.org/
SO WHAT HAS THE PARIS CLIMATE CONFERENCE ACHIEVED?

TO BE CONTINUED....