

Instead of words



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Earth



Earth

The Greenhouse Effect

The Greenhouse Effect

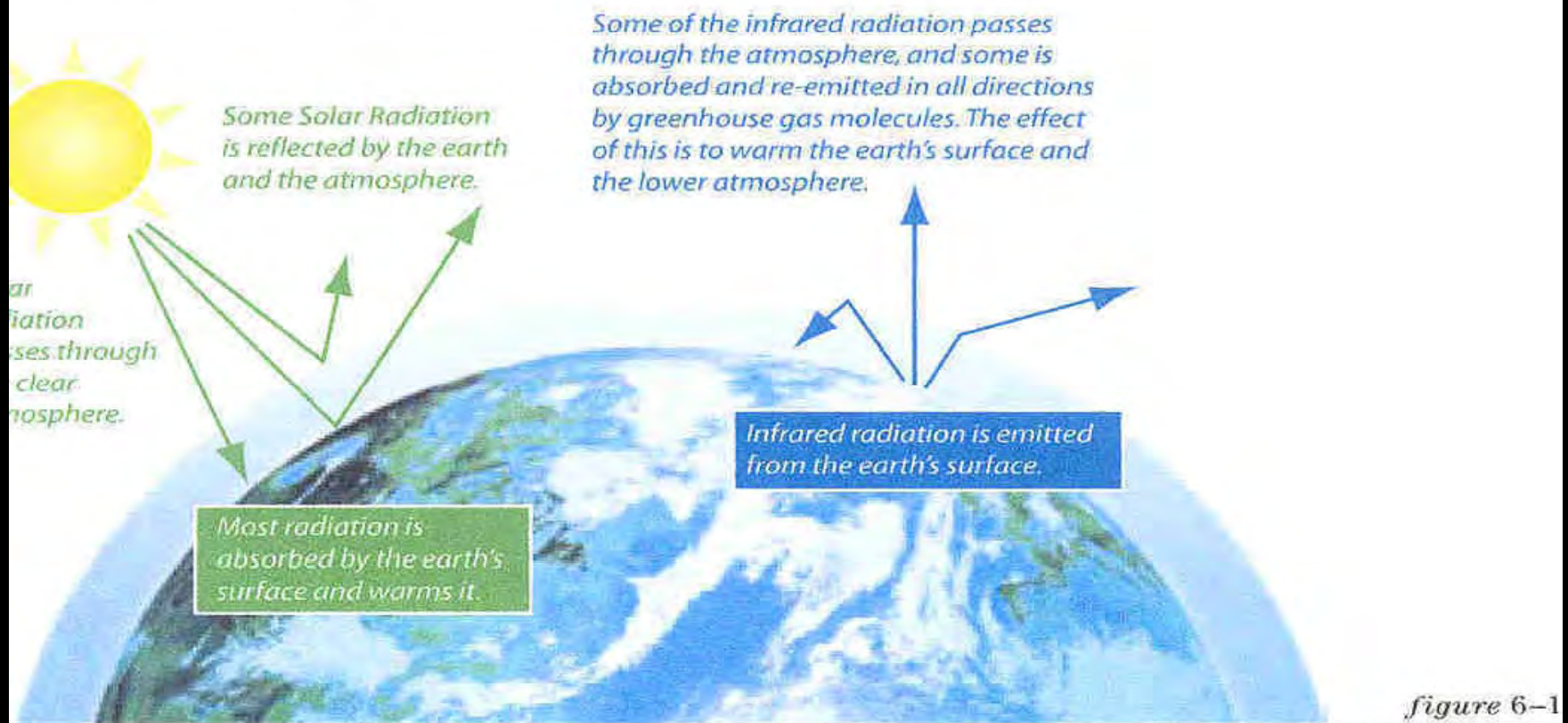
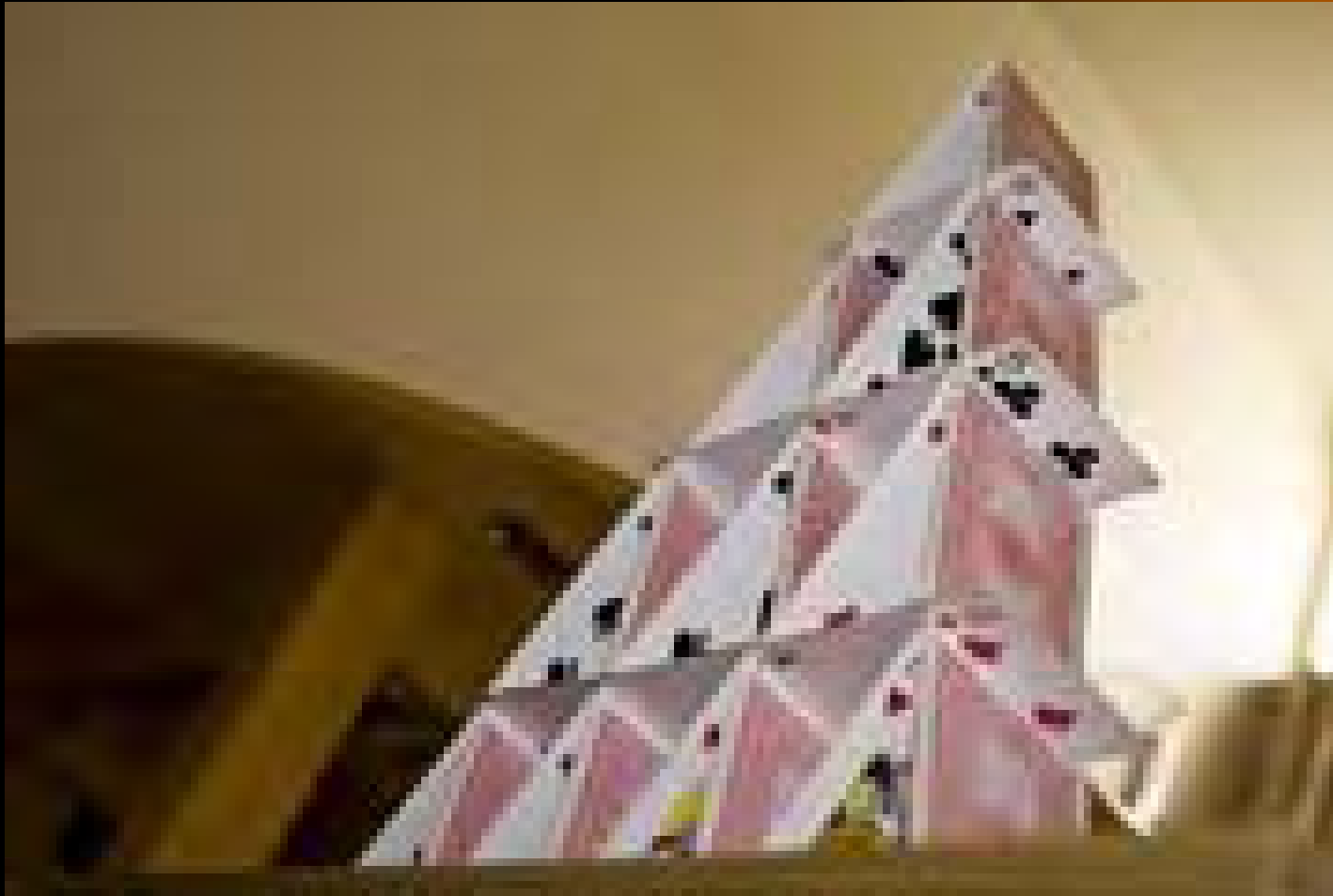


figure 6-1

E(arth) E(co) System



Global Warming – new problem?



Prof. Arrhenius Svante

Global Warming – new problem?

APRIL 1896.

XXXI. *On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground.* By Prof. SVANTE ARRHENIUS*.

Global Warming – new problem?

THE
LONDON, EDINBURGH, AND DUBLIN
PHILOSOPHICAL MAGAZINE
AND
JOURNAL OF SCIENCE.

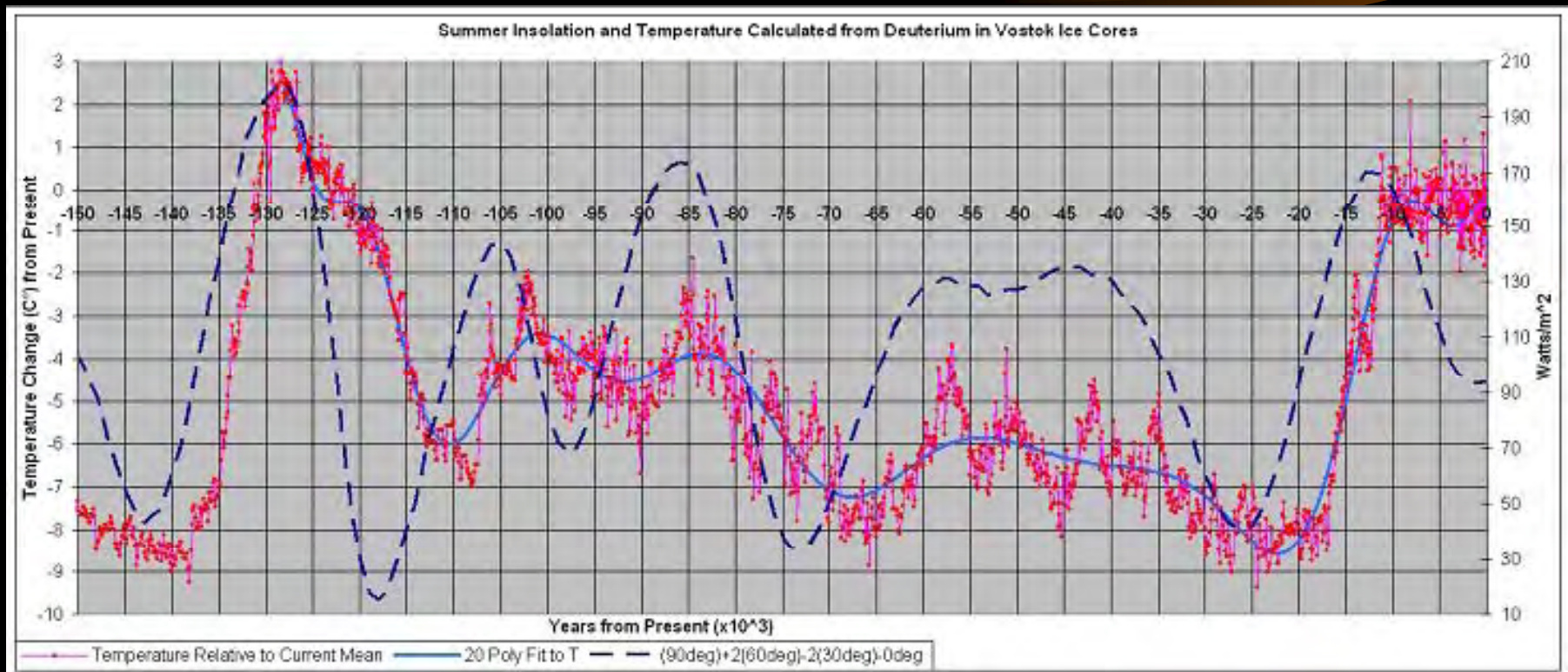
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[FIFTH SERIES.]

APRIL 1896.

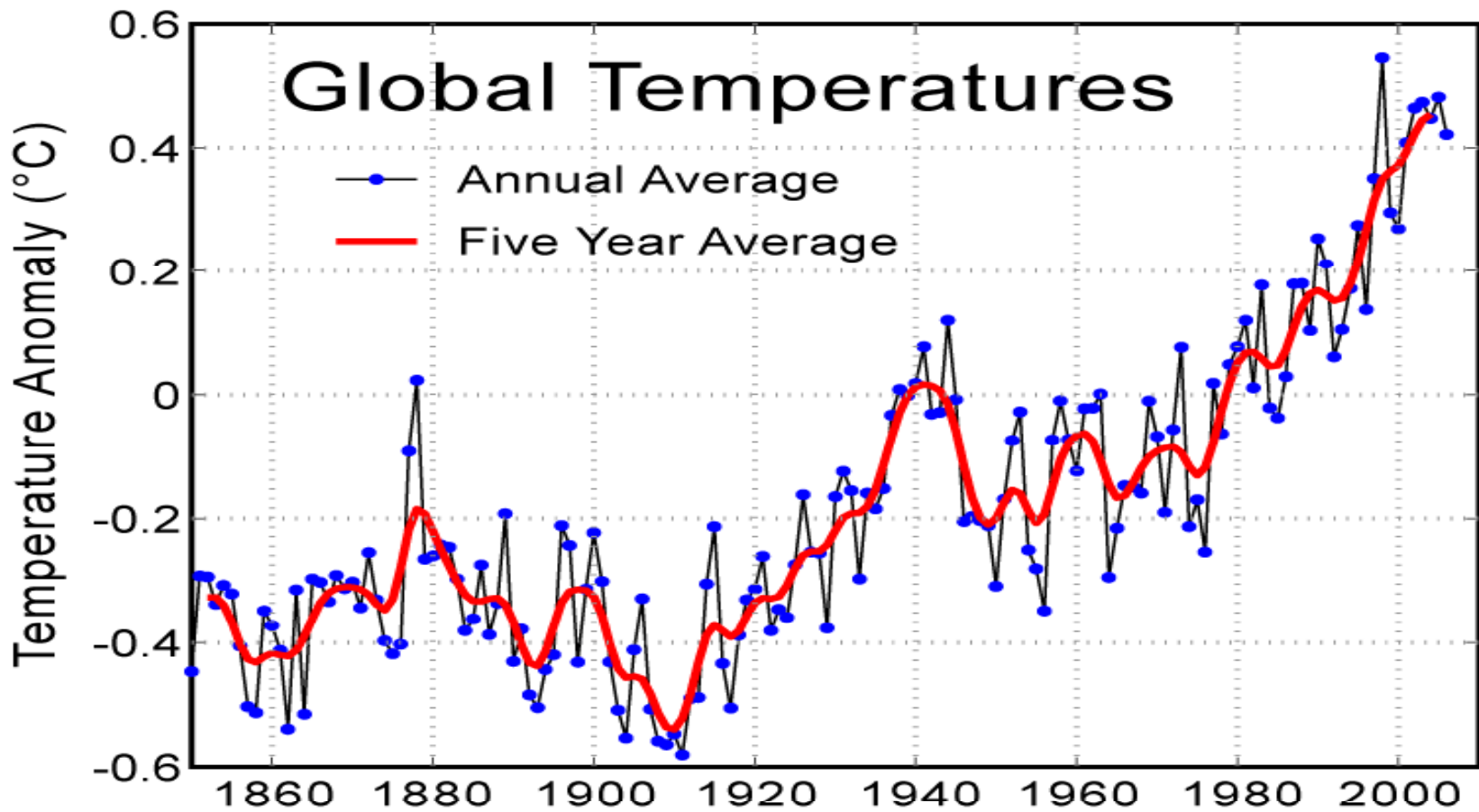
Earth



Temperature measurements (red), the solar insolation due to interactions of other planets and the moon with the earth, changing earth's orbit and orientation relative to the sun - Milankovic) in the last 145,000 years



Earth



$\Delta T \uparrow$ - sometimes good...



$\Delta T \uparrow$ - sometimes bad...



Kyoto



Copenhagen



Copenhagen



Copenhagen



Copenhagen



Copenhagen



Copenhagen



Copenhagen



Final text of the Copenhagen Accord



Final text of the Copenhagen Accord



WARNING!



Global Warming



Earth



This way?



This way ?



This way ?



This way ?



or



or



or



Fly Robin, fly (Carbon free)



Coal

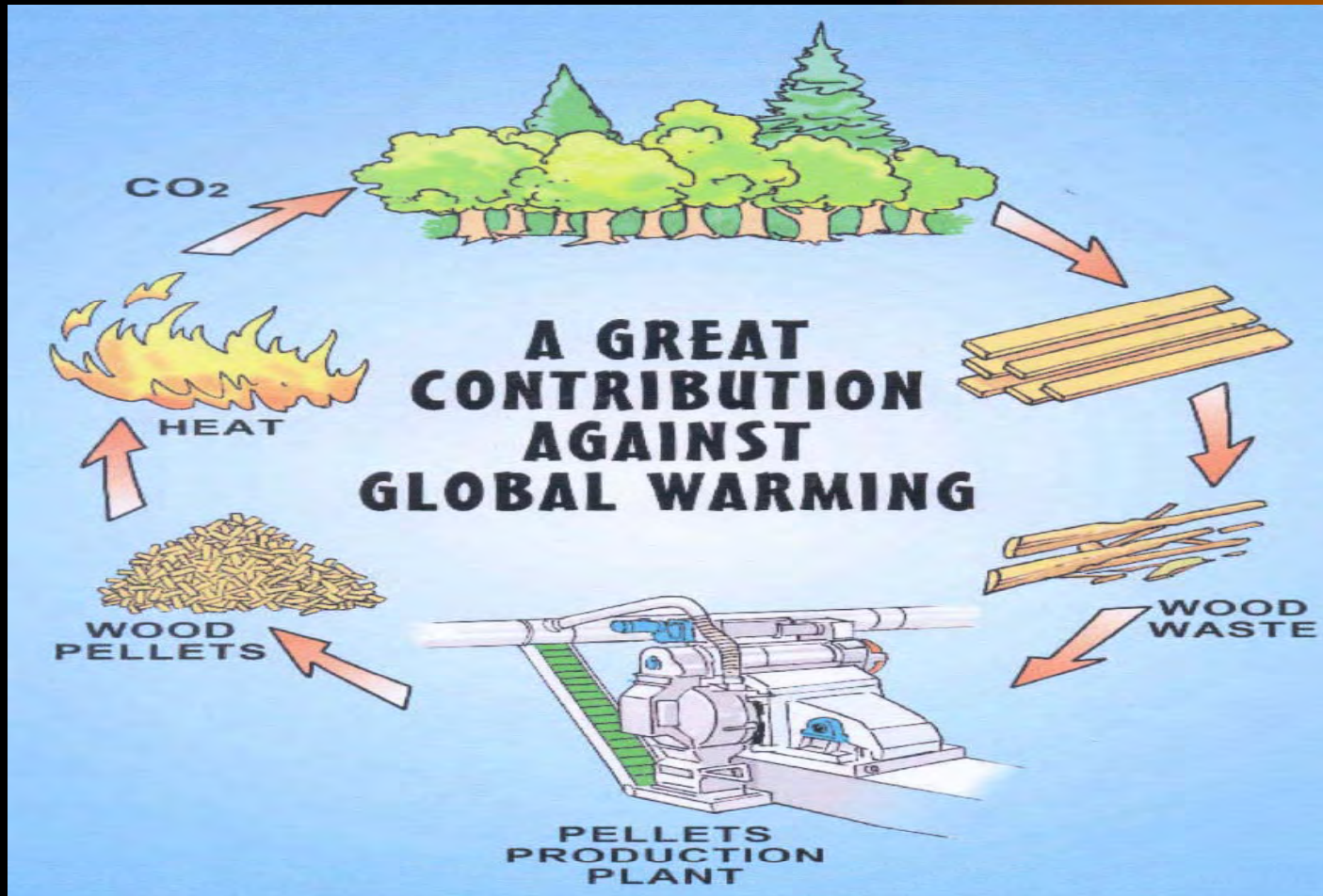


or Gas?

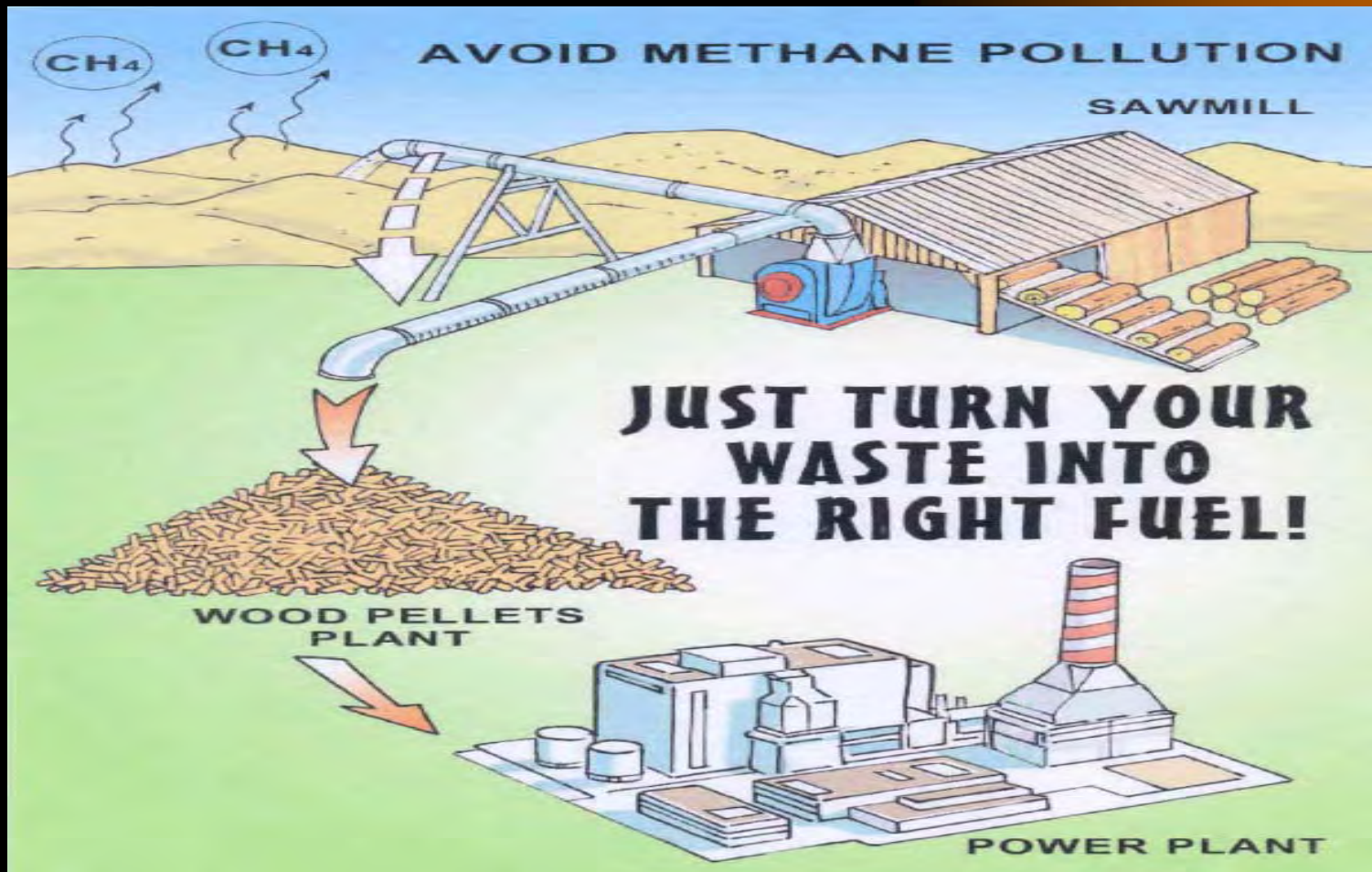


15/03/2008

Biomass



Biomass



Biomass pellets



or combustion of biomass



Fuel



or food ?



CO₂



GHGs



GHGs



Without words



Without words



Copenhagen



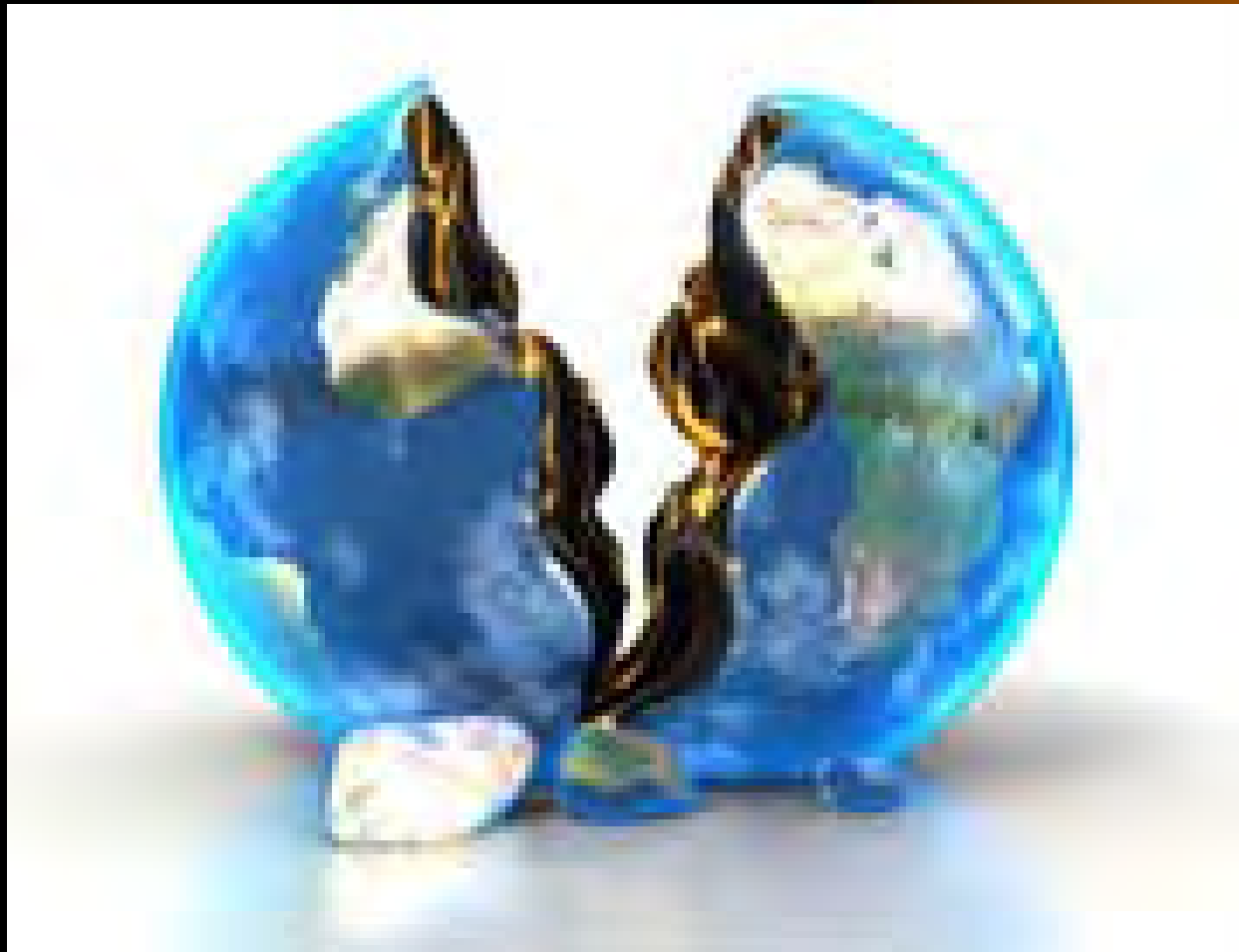
Copenhagen



Solution



Solution ?



Solution



or



or



or



or



Solution Energy Efficiency



This way



or this way ?



or this way ?



or this way ?



Earth



Earth



Earth



Four Futures:

1. Continuation,
2. Collapse,
3. Discipline, and
4. Technology and Innovation

Four Futures

Future 1. Continuation

The people favoring this approach aren't just the deniers; they are also the people who intellectually understand and accept the reality of global heating, but are so locked into the status quo and its system that they're either unable to imagine or impotent to instigate the kind of responses required to meet it.

Under this assumption life will go on in this century more or less as it did in the last, perhaps with some adaptations here and there

Four Futures



Future 2: Collapse

The end of the world as we know. This is scenario where civilisation's immensely complex and brittle systems break down and the life winds down to something more simple and local. This isn't necessarily a "worst case" scenario, but it is radically different from the modern world we know now.

Four Futures



3. Discipline

- . We acknowledge and accept the magnitude of the problem, make serious plan to deal with it and commit to following through. This is the path advocated by most enviromentalist and climate activists**

Four Futures



Future 4: Technology and Innovation

We put our confidence in our own ability to create technological solutions, like carbon-free energy sources. This is future where science fiction meets future facts. Whatever the vision, it's taken for granted that humans are very smart monkeys who can invent our way out of anything if we simply decide to think big enough.

Which way ?



Earth



Earth



or



or



Question



Is

the global warning

enough

to reduce

global warming?

Time ?



Time ?

NOW
OR NEVER



WHY WE MUST ACT NOW TO END
CLIMATE CHANGE AND
CREATE A SUSTAINABLE FUTURE

TIM FLANNERY

The End ?



Solution



Dedicated:



- To today's generation, and
- To the generation to come