

# GREENHOUSE EFFECT

WHO HAS THE ANSWERS?



**Dr. Sean Tol — Director of the Centre for Climate Studies**

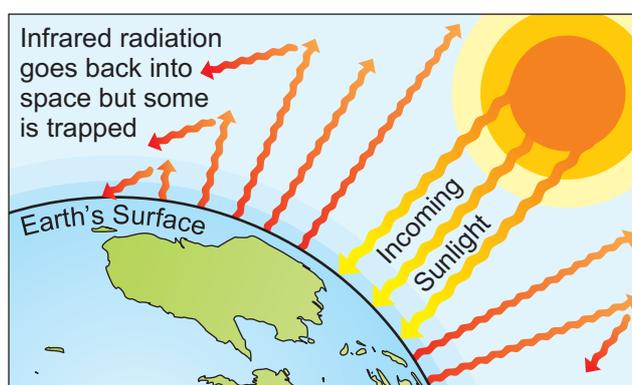
Even such well respected bodies as the United Nations have endorsed the concept of greenhouse effect. We cannot deny its existence!



**A SCIENTIST**

“There is irrefutable evidence that human activity since the industrial revolution has changed the atmosphere of our planet. Records taken from ice-cores which date back 10 000 years show a dramatic rise in greenhouse gases from the beginning of the industrial age. Human activity will continue to affect our atmosphere so we need to make major changes to the way we live on this earth.

“Some greenhouse effect is necessary. Without it the temperature of the earth would drop alarmingly. When the sunlight travels to earth, it passes through the earth’s atmosphere without any trouble. The sunlight warms the surface of the earth. The warm ground sends heat back into space. Some of the heat escapes into the atmosphere while some of it reflects back to earth. This keeps the earth at the temperature which has allowed life on earth to develop in the way it has. Too much greenhouse gas, however, will make the earth too warm.



“Six greenhouse gases contribute the greenhouse effect and thus to global warming. The evidence that human activity has increased the amounts of these gases in the atmosphere is unequivocal! “Carbon dioxide, methane, nitrous oxide are the three most common. Carbon dioxide is a natural part of our atmosphere and needed for photosynthesis. It only becomes a problem when there is too much of it in the atmosphere. Methane is a natural gas produced when vegetation is broken down. It is produced in swamps and rice paddies and by cows and other ruminants. Nitrous oxide is a by product of industry.

“Global warming will affect our weather and climate. However, we are not sure to what extent these changes will affect the climate. The world is definitely warming. The United Nations *Intergovernmental Panel on Climate Change* is suggesting that the temperature will rise approximately 0.2° in each of the next 2 decades and that promised to have dramatic effects on weather and sea-level.

“To keep greenhouse gases at their present level, United Nations committee believes that emission of greenhouse gases will have to be cut by as much as 60% in the next ten years. Such a target will be enormously difficult but achieving it will mean our continued survival.

“How can we afford not to succeed?”

How much do you know about GREENHOUSE EFFECT! At worst it's a hoax, a fraud! At best it's bad science! The Earth and its climate is as tough as old boots!



**ANOTHER SCIENTIST**

“It’s happened before you know. Scientists have been wrong. The whole greenhouse thing is a myth.

Look at the predictions scientists made about the melting glaciers. No more glaciers by 2035, the *Intergovernmental Panel on Climate Change* (IPCC) reported. Then only days later the authors had to admit that the science was wrong. They had made a mistake. They had quoted a newspaper report rather than scientific evidence. Real scientists check their sources. Real scientists don’t quote newspapers.

“So far from being certain that the Earth is getting warmer, there are scientists who believe that it is not. Why only thirty years ago, scientists were predicting a new ice age. Television producers made programmes about that too. They made up fanciful stories made up to scare people just as they are doing now. We need to make decisions that are made on scientific fact, not Hollywood stories.

“Do you know how these scientists have made their predictions?

“Computer Modelling! Computer Modelling! Computer models are just so limited. Unreliable even. Computer models are only as good as the data put into them. How do we know the data used in these current models are accurate? Even the smallest mistakes become large mistakes when the computer models make predictions over 50 years or more. Also the variations in temperature are so small that it is hard to know whether the variations we have seen are part of the normal patterns of climate or not.

“Anyway not all of the climate models support the findings that have been promoted by the media. Some very well-known and credible scientists have created excellent computer models that give quite a different picture. These include climate scientists such as Dr. Robert Goodenough from the Sir Walter Brown Centre for Climatology or Dr. William Salt, an economist at the Future Bank. These men put forward the case that the warming would help to counter the effect of a mini-ice age which can be expected to affect the Earth in the 21st century, if the patterns of past ice ages mean anything. Even the IPCC scientist have admitted that the earth should be entering a cooling phase.

“We are only really beginning to understand how climate works. Climatologists and meteorologists are only beginning to study such things now. It really is very complex and we are just beginning to have the kind of long term data we need in order to study climate change. We just don’t have enough information to draw conclusions. So we don’t have enough information to construct computer models and the models don’t have enough information to make predictions.

“Even among those scientists who do support theories of climate change a large number do not support the view that global warming is the result of human activity. Greenhouse effect is a long way from being proven fact. There’s just no need to panic yet.

“This earth is too tough to die.”

Jeremy Finn

What a lot of hot air is spoken about the greenhouse effect. I may not be a scientist but I have an interest in these things and I've done lots of reading.



**PSEUDO SCIENTIST**

“Every day in the newspaper we read something about someone, somewhere complaining about pollution. We’ve become obsessed with the idea that we’re killing the earth. What a lot of rubbish! We began industrialising hundreds of years ago. We poured pollution into the rivers and the air then and we learned to live with it. We adapted. Humans are clever enough to adapt to anything.

“Take this whole fairytale about the ‘Greenhouse Effect’ and the supposed global warming that results from it. Who says that this is happening? A handful of scientists. Scientist who are good at manipulating the media. I may not be a scientist but even I can see that the whole thing is a lot of hot air.

“The earth is warming they say. So, why do we see pictures from Europe and America showing those countries blanketed under record snow falls. That doesn’t look like global warming to me.

“We keep hearing that because of global warming the ice caps are melting and sea levels will rise. But that’s not true. Why only last week I read in the newspaper that the ice sheets are actually growing.

“There have always been variations in the world’s weather. We have experienced ice-ages and mini ice-ages before. It’s all part of the history of this world.

“As for increased carbon-dioxide, what’s the problem? I know that carbon dioxide is the basis of all plant life so why will a little extra carbon dioxide be a problem. We can grow more trees to use it.

“We have been producing greenhouse gases for hundreds of years and we haven’t done any damage. Those gases have just escaped into space and been dissipated. What’s so different now? You could increase the amount of carbon dioxide in the earth’s atmosphere a hundred times over and it wouldn’t significantly raise the temperature of the earth. The carbon dioxide would just pass harmlessly out into space. It makes sense. Doesn’t it?

“If we don’t keep industrialising we’ll be left behind, we’ll be a poor country. Our standard of living will fall. Look, I may not have many qualifications in science but I know that this is a beat-up. I’ve been reading about it since the scientists first started scaring us about this. These greenhouse scientists are so arrogant about this. They assume they’re right and defy us all to ignore them. Where is their evidence?

“I think this theory is just so much ‘hot air’ that the media uses to sell papers. The general public aren’t scientists. They can’t tell what’s true and what’s not. They just believe it all because they don’t have the knowledge to weigh it all up. Greenhouse effect is just a media myth. Don’t be fooled.!”

John Smith

The problem of the Greenhouse Effect will only be solved by the co-operation of all nations of the world.

**POLITICIAN**



“The problem is global and needs to be solved globally. There is no use one nation acting unilaterally, that country will only harm its own economy. The coal industry is important to Australia. It is a major export industry and most of our power stations are coal-fired.

“Australia’s contribution to the Greenhouse problem is small. The developed nations of the northern hemisphere are the greatest sources of this pollution. They need to take their fair share of responsibility in this matter and make the first moves to limit emission of greenhouse gases. How can we expect developing countries such to restrict their pollution when the world’s wealthiest countries do not.

“Australia is too small a nation on the world stage to be in the forefront of initiatives such as these. Our industries lack the economics of scale necessary to undertake the research and development projects needed to develop the new technology needed to meet the challenges.

“Some scientists have suggested a global approach to controlling the development of the industries that are major polluters. This would mean the same industries in every country would have to meet the same standards and no one economy would be disadvantaged. Others have suggested that the world could think beyond national boundaries. For example, power hungry industries could be placed in countries which have plentiful supplies of power.

“I think we Australians can applaud this idea. We have the potential to generate plenty of power and would be well able to host these industries.

“However, there are some very rich countries in the world that would not be receptive to this idea. Japan and China, for example, currently consume fossil fuels from around the world. I cannot see these countries shifting their manufacturing industries to other countries. I fear that they will simply seek new sources of power and go down the nuclear road.

“SOMETHING has to be DONE! We look to the United Nations to encourage global frameworks to create cooperation between nations. I don’t know how they’ll manage it, but no country is an island unto itself.

“On the local scene, Australia can do some things. We will be concentrating on the development of clean coal technology. That will allow us to still sell our coal internationally. At home, we will be exploring the use of renewable energy sources. We will meet with industry leaders and listen to their ideas about what could be done.

“In a major government initiative we will encourage more of our brighter students to study science. We need a new generation of scientists to meet the challenge. The solution of the greenhouse problem will be their challenge for the future and it’s a vital one for mankind.”

**Dr Maryanne Wendon — CEO of Barnacle Petroleum**

We at Barnacle Petroleum believe that the possibility of global warming needs to be taken seriously.



**CAPTAIN OF INDUSTRY**

“We cannot deny that the Greenhouse Theory has general acceptance within the scientific community and therefore needs to be taken as fact until a sufficient body of knowledge points to the contrary. We must, nevertheless, understand that modelled predictions have many gaps of technical understanding. Although climate models are becoming more sophisticated, no reliable predictions can be made for particular regions.

“Some commentators in Australia believe that we should lead the world and set an example in reducing greenhouse gas emissions. But, it should not be forgotten that Australia is a small manufacturing country, and that unilateral reductions in Australia’s output will result in a negligible change in the output of greenhouse gases because Australia is responsible for only 1% of global emissions.

“These basic questions need to be considered by Australians.

What are the benefits to Australian climate of any particular reduction?  
What will it cost our community to make these reductions?  
Is it worth it?

“The Barnacle Petroleum Institute conducted a simple research program to try to answer these questions. Our research suggests that the costs of reducing greenhouse gases will be very large indeed. For our study we constructed computer models to test three things that might reduce the production of carbon dioxide.

*First*, we converted half of all road transport to compressed natural gas.

*Second*, we substituted natural gas for 50 percent of all coal based electricity production.

*Third*, we increased transport fuel efficiency by 30 per cent.

The effect on the production of carbon dioxide was small. Our computer models suggested that even if we achieved the desired targets in all three areas, we would have production of carbon dioxide 31% higher than it was ten years ago.

“The mining company CRA recently commissioned a study of the costs of meeting the Toronto Conference target of 20% reduction of greenhouse effect gases by the year 2005. It found that \$30 billion would be lost to Australian industry and that the real wages of Australian workers would decline. Energy intensive industries such as aluminium smelting would be severely affected.

“Some nations will have to do more than others to contribute to the reduction of greenhouse gases.

“What our studies show is that there is no quick fix scientific, engineering or even legislative solution to the problem.”

We have to look after our Earth. It's very sick! The responsibility is ours. We have to act NOW!

**ENVIRONMENTALIST**



“We have cleared the Earth of much of its forests. Trees are the LUNGS OF THE EARTH. Trees store carbon dioxide and release it back into the air as oxygen. There aren’t enough trees to absorb the huge amount of carbon dioxide we’ve been producing in modern times.

“Every day thousands of acres of pristine Amazon jungle are bulldozed to the ground and burnt. The habitat of thousands of species of jungle animals is destroyed. The jungle homes of the South American Indians are being destroyed, so that they too will become an endangered species. All that is serious, but most important of all is the fact that we are destroying the Earth’s lungs and all the people of the Earth may become an ‘endangered species’.

“Closer to home, the countries to our north are bulldozing thousands of acres of pristine rainforest in order to grow crops. Are these crops being used to feed their own people? To make them richer? No these irreplaceable stretches of rainforest are being used to grow cash crops like palm sugar and coffee — the luxury goods of western societies.

“We each have to do our own part or this planet is doomed. Each one of us has to make changes in the way we live and the goods we consume. We can make small changes to our everyday life.

“Most cars going into our cities each morning have only one passenger so we need to make more use of public transport. Children could walk or cycle to school. It would be good for them.

“Try not to use so much electricity. The fossil fuels we use to make electricity release carbon dioxide in the atmosphere. So turn off the lights. Think before you run your air-conditioner. In summer open a window to catch the breeze. In the winter, wear warmer clothes instead of putting on the heating.

“Don’t burn off in your backyard. It puts more carbon dioxide into the air. Recycle everything you can. Put lawn clippings and vegetable peelings in a compost heap. Send bottles back for recycling. Plant a tree or grow your own vegetables. It all helps.

“Finally, we can choose to change the future. We can all act together to make the changes that turn around our contributions to Greenhouse Effect. We have done it before. When the world was threatened by an ever-growing hole in the ozone layer, most countries acted to address the problem of the gases that were causing the problem. These countries signed the Montreal Protocol and over the years we have seen a decline in CFCs, halons and other damaging gases. The hole in the atmosphere is much smaller. We can act together to fix the Greenhouse problem. We must act together!

“It’s our earth and our future. We ALL have to look after it. We have to share the responsibility as well as the benefits.”

## Retrieval chart — Character summary

<b>Conclusions</b>	
<b>Predictions</b>	
<b>Global warming</b>	
<b>Evidence</b>	
<b>Purpose</b>	
<b>Characters</b>	

## Cloze passage

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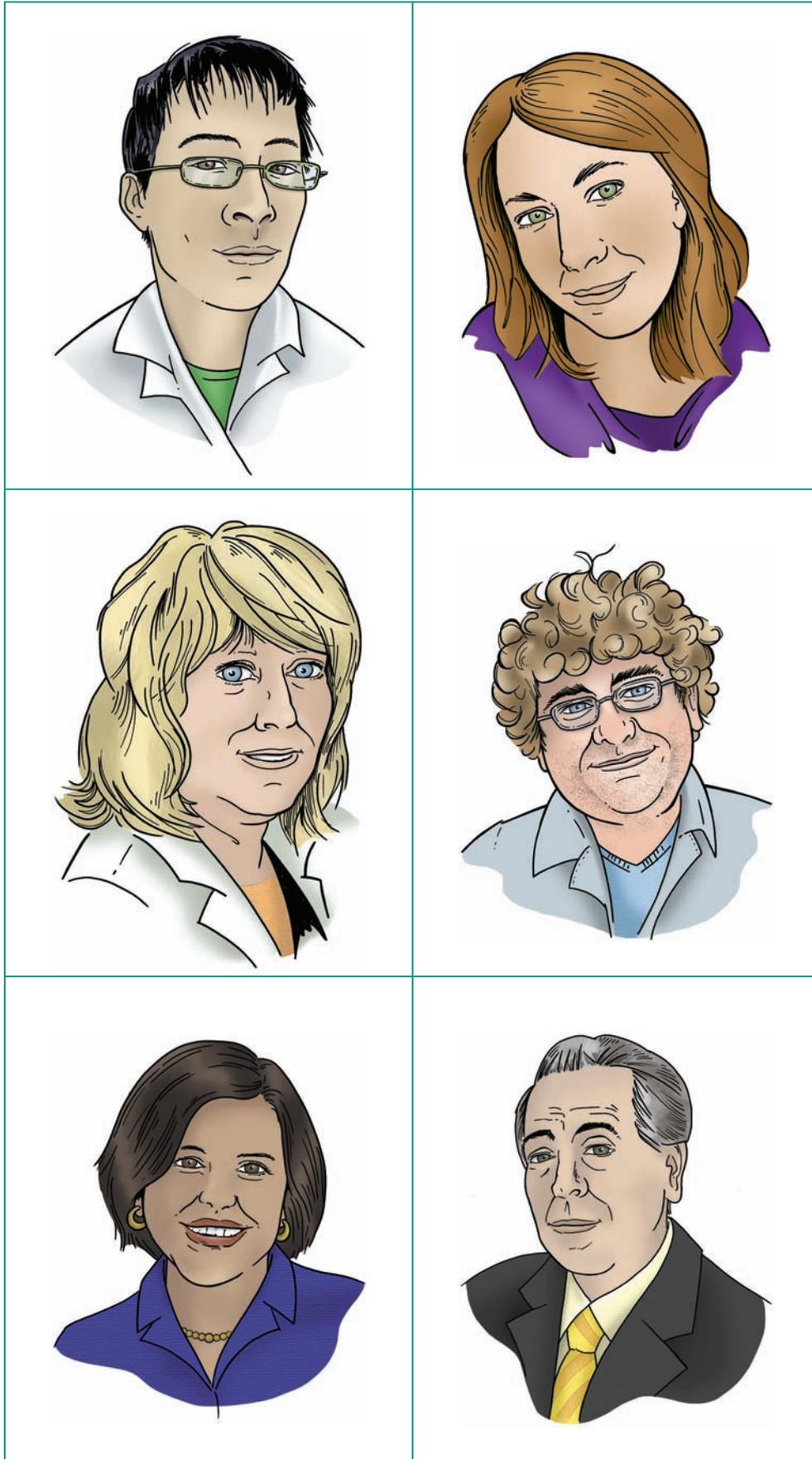
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## Deletion summary

Deletion	Scientist 1 FOR	Scientist 2 AGAINST	Pseudo Scientist	Politician	Captain of Industry	Environmentalist
1						
2						
3						
4						
5						
6						
7						
8						

## Vocabulary choices

The design for each character is essentially the same genre. They are all a personal explanation of a point of view. They take the form of speech written down. This has been done to highlight the fact that a wide variation within the genre is still possible. The variation in the language is a result of contextual factors related to the subject matter selected, the purpose and relationship between the people involved in the communication. It follows, therefore, that if different genre were to be selected to write about the greenhouse effect, the variation in text and meaning will increase exponentially.

Six sample responses have been recorded on the attached response sheet. Where the speaker's message is clear or the attitude clearly understood there has been a high correlation in the substitutions, e.g. deletions 5 and 6 of the "Captain of Industry". In other cases, a word of similar meaning has been chosen but the meaning is slightly altered or shaded, e.g. *disagree/dispute*. This shading may reflect something of the bias which the reader brings to the text. The mismatch between the text and the meaning, also present in this character's argument is also illustrated by the weakness of the vocabulary chosen for these deletions. It may also be fruitful to contrast the language choice of the "Captain of Industry" with that of the "Environmentalist" whose language is probably the most emotive.

Some words are more formal than others and these selections can make implications about such things as language background, education and status. They imply credibility. *Informed* has more connotations of knowledge than *told*. Words such as *verified*, *insidious* and *concur* imply a certain level of language mastery and/or education. The scientists, for example, speak of *proven* or *unproven*, *irrefutable* or *inconclusive* evidence because this is the nature of their discipline. It is also the nature of scientists to use language which will allow them the ability to change or shade their opinion in the light of new evidence, so expect some caveats in deletion 6, "Scientist 2" (against), e.g. *unlikely* or *may not*. In discussion you may wish to compare that with the substitutions inserted for "Scientist 1" whose stance is strongly signalled.