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Climate change: Our legacy

By Tim P. Barnett
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Do you have any idea how human-induced global warming will affect you, your children or grandchildren? Is it even real? Can we do anything about it? Is our government protecting us from this threat?

The first global warming impacts we will feel in San Diego most likely will be on our water supply and energy resources. In a warmer world, Mother Nature will give up her role as banker of our summertime water supply via the Sierra Nevada snowpack. California does not have enough dam capacity to replace nature's gift, and so the water will be passed on to the oceans. Given a growing population in a dry region, this raises the specter of water rationing like we've seen during previous California droughts. But in the coming greenhouse world of 2020 or so, rationing will become a permanent way of life.

Another impact on each of us will be our energy needs in a warmer world. The number of really hot days will approximately double in San Diego in the next 20 to 30 years. This means those of you who live in the inland valleys (El Cajon, Ramona, Temecula, etc.) will want to run your air conditioner longer and more often. But the California power grid is essentially tapped out now. The specter of rolling blackouts and other disruptions we saw in 2000 also may become a way of life in the future world.

On longer time scales, increased warming will lead to melting of the ice packs on Greenland and Antarctica. If Greenland melts, sea level will rise about 21 feet and most of the world's harbors, including San Diego's, as well as some low-lying countries, will be obliterated. Future warming will likely release huge deposits of methane now frozen in shallow seas and in the Arctic. Methane is a very potent greenhouse gas whose sudden release would cause a big spike in global warming. The rapid release of methane is thought to be one of the factors in the great Permian extinction of about 250 million years ago, when most life on earth vanished. There is no shortage of scary possibilities like these awaiting us.

ACTIONS: What can we do?

The good news is that we can do something about our local problems if we act now. More water storage, for example, in our depleted aquifers would start to hedge the water

problem. Combining desalination and the recycling of waste water for specific applications can buy us some time, especially if sensible water efficiency standards are pursued. Also, we are blessed with an abundance of sunshine and that suggests conversion to solar power. The bottom line is that we have viable, though expensive, options. The longer we wait, the more expensive they will be.

Others in the world do not have options. Consider Peru/Bolivia where the glacier melt water from the Andes provides dry season water for agriculture, drinking and hydroelectric power that sustains those countries. Within the next decade or so many of their glaciers will have melted. Glaciers are fossil water, ice formed thousands of years ago, and cannot be replaced in a warming world. Worse off will be northwest China which faces a similar fate but on a slightly longer time scale. Three hundred million Chinese will be impacted and that assumes today's demographics. It is hard to imagine the Chinese government accepting this situation.

REALITY CHECK:

Are such threats real?

Is global warming real? Do we really need to worry about it? Unfortunately, the answer is a resounding YES! The third Nobel prize-winner in chemistry discovered more than 100 years ago that natural carbon dioxide in the air keeps the earth warmer than it would be otherwise. That keeps our climate pleasant, but it didn't seem relevant to everyday life in the 1800s.

That all changed when Scripps Institution of Oceanography's Charles David Keeling (who recently passed away) discovered that carbon dioxide has been building up relentlessly in the atmosphere due to human activity. In fact, there is 20 percent more carbon dioxide in the air now than just 50 years ago. That is a greater amount than the earth has seen in the last 400,000 years!

Think about two undisputed facts: Carbon dioxide keeps the world warmer than it would be otherwise, and carbon dioxide is building up, year after year, due to human activity. You can see where the concern about a warmer future comes from.

Recent research has overwhelmingly proven that the weather and climate are changing and that the human-caused buildup of greenhouse gases is responsible for much of the observed changes. But one need not rely on fancy scientific studies to see something is happening to the climate system. The warming is causing the Arctic ecosystem to disintegrate, the vast coral reefs to die off, glaciers to retreat worldwide, massive changes in the northern forests of North America, substantial shifts in migration times of animals and birds, reduced snowpack in many regions of the world, melting of the Greenland ice sheet and so on.

Across the globe, these changes are well documented for the non-scientist in recent newspaper and magazine reports, TV specials and documentaries.

Scientists have looked exhaustively at all sorts of natural explanations for the current warming; changes in the sun's intensity, volcanoes, cosmic rays, El Niño and changes in the earth's orbit such as those associated with ice ages. None of these explain the warming or the warming impacts we actually see. But the simple physics associated with increasing carbon dioxide explains what we see very well. The bottom line is: These changes, for which we are largely responsible, are happening way too fast for the physical and biological systems of the planet to adjust.

When one looks at all the evidence objectively, the existence of human-induced global warming seems a certainty to a very high degree of probability. Faced with such overwhelming odds, any prudent person would take immediate action.

POLITICS: What problem?

The Bush administration has steadfastly stonewalled the global warming issue, using a variety of arguments that change over time, to say there is no problem. The climate computer models that predict serious impacts, while by no means perfect, have proven they have enough credibility to demand action from our government. To dismiss these predictions "as too uncertain" for action, the current denial mechanism, is a betrayal of this nation's trust.

Besides denials, what else is our government doing about the problem?

Prior to the recent G-8 Summit, the National Academies of Science of 11 countries (including major polluters like China, India, Brazil and the United States) issued a remarkable joint statement that essentially said the greenhouse problem is upon us and suggested some immediate actions for the G-8 and other nations. But at the insistence of this administration, the call for action by the most prestigious scientific groups on the planet was ignored.

This is the same administration whose White House Council on Environmental Quality (CEQ), reports The New York Times, was rewriting official government scientific documents to minimize or gloss over the global warming issue – until it was caught in the act just a few weeks ago. The culprit in this case, who has no scientific expertise, came to the CEQ from the American Petroleum Institute, a lobbying group for the energy industry. When he resigned over his altering activities, he took a job with Exxon. So it is fair to ask a) is our government more interested in our safety and future or the quarterly bottom line of Exxon/Mobil and their buddies, and b) is the CEQ a policy arm of "we the people" or the energy industry?

We should demand that our government be more interested in protecting the future of the world than it is about the costs the energy industry will incur by addressing it.

In giving talks on global warming, my colleagues and I have always wondered about the degree of confusion the public seems to have on the subject. It turns out that the energy industry has been conducting a "disinformation campaign" on the subject. This effort has been traced back to the early 1990s. In a remarkable game plan, obtained by environmental groups and described in The New York Times in 1998, the API outlined just how this project would go. The institute has followed that plan with great success, using the press and hired hands who masquerade as climate "skeptics" to naysay, discredit and spread disinformation wherever possible to the population. Check out www.exxonsecrets.org on the Internet for more details. The recent tampering with scientific documents by the CEQ makes it clear that this "disinformation campaign" extends all the way to the White House.

OUR LEGACY: Time is up!

Greenhouse gases live in the atmosphere for 20 to 100 years. Our actions today are determining the climate in which our children and grandchildren will have to live. If they do not like that climate, there is not a thing they will be able to do about it. Our entire socio-economic system is based on fossil fuels, the primary source of greenhouse gases. Our challenges are to make the changes necessary in our society to greatly reduce our need for a "societal carbon fix," avoid an economic dissembling in the process and avoid trashing the planet. How we meet these mega-challenges now will be our legacy to the future. With the warming already upon us time is, quite simply, up.

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