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Climate change spells coal phaseout

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Taking swift action to solve climate change will cost only a modest amount and may even benefit the economy in the long run. Delay, on the other hand, could be disastrous.

ThAT was the message delivered in late March by James Hansen, head of NASA's Goddard Institute for Space Studies and one of the first U.S. scientists to sound the alarm about global warming. Hansen released a report stating that catastrophic climate change is now likely if we fail to promptly reduce greenhouse gas emissions. Uncontrolled global warming would, he said, "forever alter the conditions under which civilization developed and to which life on Earth is adapted."

That's a scary prognosis. Yet Hansen's report did not make the evening news, and no presidential candidate mentioned it. It should be no surprise that many local business and government leaders fail to grasp the seriousness of the problem. The information is not getting out to the public.

Hansen's assessment found that the world already has overshot the limits necessary to prevent severe climate change. Unless rapid shifts are made to ensure that the overshoot is brief, irreversible and catastrophic effects are likely.

Here's how this works. The atmosphere is composed of carbon dioxide, methane and other gases that trap just enough solar radiation being reflected from the Earth to keep global temperatures warm enough for life as we know it to exist. The rest of the heat is released into space. This is called the "natural greenhouse effect."

Greenhouse gases typically are measured in parts per million. For thousands of years, their concentration in the atmosphere has been between 260 ppm and 280 ppm.

The industrial revolution, however, initiated the widespread use of coal and other fossil fuels, which dramatically increased the amount of carbon dioxide and other gases in the atmosphere. Today, concentrations are at 385 ppm, which is the highest they've been in at least 10,000 years.

The Intergovernmental Panel on Climate Change said that human-induced global temperature increases must be limited to 2 to 3 degrees Celsius (3.6 to 7.1 degrees Fahrenheit) above preindustrial levels to avoid severe climate change, with the lower level being much safer. The European Union consequently adopted a limit of 2 degrees Celsius for policy purposes.

No government in the United States has adopted any temperature limit.

The Intergovernmental Panel on Climate Change said that limiting additional warming to 2 degrees Celsius implies that atmospheric greenhouse gas concentrations must rise no higher than 450 ppm. Anything above that is likely to produce a "runaway

greenhouse effect," causing the Earth to become so hot that catastrophic climate change occurs.

Hansen's new research found that the Intergovernmental Panel's 450 ppm target, which he helped develop and once supported, was too generous. To prevent catastrophic climate change, Hansen found that greenhouse gases must be limited to, at most, 350 ppm.

The fact that we already have exceeded this level could explain why the Greenland and West Antarctic ice sheets are melting faster than scientists expected. Hansen said that if current emissions trends continue for even 10 years, the world will experience repeated tragedies affecting coastal areas due to rising sea levels. More intense storms, drought, shortages of fresh water and collapsing food supplies will also occur. Eventually, the climatic conditions that allowed civilization to flourish will erode.

It's possible that Hansen is wrong. Some scientists have responded by saying the original 450 ppm target is sufficient. However, business-as-usual emissions projections show the world rapidly blowing past 450 ppm, so this debate is mostly irrelevant. The fact is that if we don't rapidly reduce emissions, a crisis of world-changing proportions will overwhelm us soon.

What will it take to keep the overshoot of greenhouse gases short-lived? Hansen said the first step is to phase out coal within 10 years, except in the rare cases where its carbon emissions can be sequestered. If coal is eliminated, Hansen believes that improved management of agriculture and forests can absorb enough carbon to bring concentrations back to 350 ppm.

Much of the world relies on coal for its power, so a phaseout will not be easy. Despite our use of hydropower, even about 40 percent of Oregon's electricity comes from coal.

How can Oregonians quickly phase out coal? New coal-fired power plants should be prohibited. Wasted energy should be reduced with more efficient buildings, industrial processes and transportation and a greater push for conservation. The use of renewable energy, such as wind and solar power, also must be increased, and rapidly.

Anyone concerned about their children's future should read Hansen's findings. A clear understanding might help prompt support for action that can save billions in damages and avoid irreversible effects.

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