Save the Earth in Six Hard Questions

What Al Gore doesn't understand about climate change.

BY STEVEN E. LANDSBURG OCT 22, 2007

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Barring a last-minute intervention by the Supreme Court, the 2007 Nobel Peace Prize will be shared by Albert Gore Jr. Admittedly, Gore has been less of a menace to world peace than some previous laureates (think Henry Kissinger). But there is nothing particularly peaceable about Gore's rhetorical approach to climate policy. At his most pugnacious, Gore has depicted the fundamental trade-off as one between environmental responsibility and personal greed. Of course, as everyone over the age of 12 is perfectly aware, the real trade-off is between the quality of our own lives and the quality of our descendants'.

In other words, climate policy is almost entirely about you and me making sacrifices for the benefit of future generations. To contribute usefully to the debate, you've got to think hard about the appropriate level of sacrifice. That in turn requires you to think hard about roughly half a dozen underlying issues.

1. How much does human activity affect the climate? This is actually a whole menu of questions: What can we expect given the current level of carbon emissions? What if we cut those emissions by half? By two-thirds? And so on. These are questions for physical scientists, not economists or politicians.

2. How much harm (or good!) is likely to come from that climate change? This is partly a matter of physical science and partly a matter of economics. If the world temperature rises 3 degrees, agronomists try to predict the wheat yield in Oklahoma; economists try to predict when Oklahomans will turn to alternate ventures—and when it will become profitable to grow wheat in Alaska. Climatologists estimate what it takes to put New York underwater; economists estimate the cost of moving New York inland.

3. How much do we—or should we—care about future generations? Edmund Phelps, the 2006 Nobel laureate for economics, argued long ago that you (and I) should care exactly as much about a stranger born 1,000 years hence as we do about a stranger who's alive today. Phelps' view has been highly influential among economists, who now take it as more or less the default position. But even economists are sometimes wrong, and there are powerful arguments for "discounting" the welfare of future generations. First, many people (myself excluded, however) believe we should care more about our countrymen than about a bunch of foreigners—hence the sentiment for a border fence. If we are allowed to care less about people who happen to be born in the wrong country, why can't we care less about people who happen to be born in the wrong century? And second: Few of us feel morally bound to churn out as many children as we possibly can, which means we think nothing of denying future generations the gift of life. If it's OK to deny them their very lives, shouldn't it be OK to deny them a temperate climate?

There is a ton more to be said in response and counter-response, but in the end, you've got to take a stand. Does the next generation count 100 percent as much as our own, as Edmund Phelps demands? Or 99 percent? 95 percent? 90 percent? I'll show you later how much the answer matters.

4. How likely are those future generations to be around, anyway? If you think life on Earth will be destroyed by an asteroid in 200 years, it makes little sense to worry about the climate 300 years from now. (Of course, the issue is complicated by the fact that our climate policies change the survival odds.)

5. Just how rich are those future generations likely to be? If you expect economic growth to continue at the average annual rate of 2.3 percent, to which we've grown accustomed, then in 400 years, the average American will have an income of more than $1 million *per day*—and that's in the equivalent of *today's* dollars (i.e., after correcting for inflation). Does it really make sense for you and me to sacrifice for the benefit of those future gazillionaires?

6. How risk-averse are we? This matters not just because of uncertainty about the effects of climate change but because it affects the way future generations want us to behave. Imagine yourself as a disembodied soul, waiting in line to be born—possibly next year, possibly 100 years hence. If you have little tolerance for risk, you'll want us to pursue policies that make life about equally good at all times; if you're willing to roll the dice, you might prefer a policy that allows some generations to live riotously at the expense of others.

Only after you've addressed each question in turn can you say something sensible about climate policy. To carry out that program in detail would indeed be a Nobel-worthy achievement. I don't propose to earn my Nobel Prize in this column space, but I can at least offer a quick back-of-the-envelope calculation to show you how this stuff works.

First, I'll make the extreme assumption that our environmental recklessness threatens to shave 1 percentage point off economic growth forever. Because of compounding, our disposable incomes will be reduced by 9.5 percent a decade from now and by 63 percent a century from now—perhaps because we'll spend

63 percent of our incomes relocating coastal cities. Now toss in some standard (but arguable) assumptions about risk aversion and discounting. (Note to econogeeks: I assumed a risk-aversion coefficient of 1, and I discounted future generations' welfare at an annual rate of 5 percent, partly because we might care less about them and partly because we're not sure they'll exist.) Run this through your calculator, and you'll find we should spend up to about 17 percent of our incomes on climate control—provided that our investment is effective. That's an expenditure level that I expect would satisfy Al Gore.

Change the numerical assumptions, and you'll change the numerical conclusion. Make the discount rate 1 percent instead of 5 percent, and you can justify spending up to a whopping 62 percent of our incomes on climate control; lower the discount rate to 10 percent, and you can't justify spending more than 8 percent of our incomes.

The moral of that story is not that economists can justify anything; it's that assumptions really matter. Therefore you need to be clear about your assumptions, and you need to be prepared to justify them. If you're not talking about discount rates and levels of risk aversion, you're blathering.

The most thoughtful assessment of climate change is the Stern Review, prepared in October 2006 at the behest of the British government. The Stern Review reaches conclusions generally compatible with Al Gore's worldview, but only after laying out the underlying assumptions so clearly that skeptics like me can tinker around with them and see how the conclusions change. In other words, they've taken a hot-button issue and reduced it to its constituent pieces so that opposing parties can stop yelling at each other and say, "Let us calculate." That's what I call a contribution to world peace. I wish the Nobel Committee had agreed.

Save the Earth in Two Not-So-Hard Questions

What Steven Landsburg doesn't understand about climate change.

BY JOSEPH ROMM

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In response to the recent announcement of the Nobel Peace Prize, ***Slate*** economist Steven Landsburg has written an ill-informed hit piece on Al Gore. "Save the Earth in Six Hard Questions: What Al Gore doesn't understand about climate change" argues that "there's nothing particularly peaceable about Gore's rhetorical approach," and that anyone who doesn't talk about climate change in purely economic terms is full of hot air. In fact, Gore understands what Landsburg doesn't: The realities of catastrophic global warming can render economic analysis largely moot.

Landsburg poses six questions to get at what he sees as the central issue—the trade-off between "the quality of our own lives and the quality of our descendants." Once you understand the reality of climate science and climate solutions, however, the supposed trade-off disappears. We really need to answer just two questions:

1. How great a threat does inaction on climate change pose for future generations' quality of life—and for life itself?

Answering this question was perhaps the central goal of Gore's movie, *AnInconvenient Truth*. In short, climate change is the gravest of threats—a point economists like Landsburg seem to miss. Truly catastrophic outcomes remain a distinct possibility: Sea levels were *25 meters higher* about 3 million years ago, when global temperatures were 2 degrees to 3 degrees Celsius warmer than they are today—a warming we will see *this century* under business-as-usual emissions trends. And the oceans could rise a meter every 20 years for centuries to come, as NASA's James Hansen has explained. A few economists, like Harvard's Martin Weitzman, have shown that these plausible worst-case scenarios will dominate any serious economic analysis of climate change.

Landsburg claims, "Climatologists estimate what it takes to put New York underwater; economists estimate the cost of moving New York inland." No. Few, if any, economists would bother to estimate thecost of moving New York City, with its unique physical assets and vast infrastructure—let alone the billion people worldwide who would lose their homes if sea levels rose 25 meters. Economists do estimate the cost of building levees, but how do we build levees if sea levels are rising more than a foot a decade—and if many coastal cities face Katrina-like superstorms in the future?

Next, Landsburg asserts that "if the world temperature rises 3 degrees, agronomists try to predict the wheat yield in Oklahoma; economists try to predict when Oklahomans will turn to alternate ventures—and when it will become profitable to grow wheat in Alaska." Suppose Oklahoma's climate changes and it

enters a permanent drought, as some studies suggest—along with the entire Southwest and many parts of the world. What “alternate ventures” will thrive in a permanent Dust Bowl? Suppose the climate passes a tipping point whereby carbon sinks like the ocean saturate (as they are beginning to now) and carbon sources like the tundra start to churn out their own emissions—and the climate never stabilizes enough to allow wheat to be grown in Alaska?

Landsburg thinks climate problems are very, very distant. So he keeps posing the wrong questions:

> Just how rich are those future generations likely to be?If you expect economic growth to continue at the average annual rate of 2.3 percent, to which we’ve grown accustomed, then in 400 years, the average American will have an income of more than $1 million *per day*—and that’s in the equivalent of *today’s* dollars (i.e., after correcting for inflation). Does it really make sense for you and me to sacrifice for the benefit of those future gazillionaires?

Seriously, in 400 years we’ll all be Bill Gates, so let’s party now! In fact, the Southwest faces a permanent drought from global warming *by 2050*. Scientists fear the sea-level rise could exceed one meter by century’s end—but more importantly, a far greater rise will be unstoppable if we don’t act quickly.

Landsburg also asks: “How likely are those future generations to be around, anyway? If you think life on Earth will be destroyed by an asteroid in 200 years, it makes little sense to worry about the climate 300 years from now.”

No wonder it is said that economists understand the price of everything but the value of nothing. If you *really* think life on Earth will be destroyed by an asteroid in 200 years, then the answer is not to blindly accept our own extinction and at the same time ignore climate change mitigation. The answer is to spend the

money today needed to mitigate the chance of the asteroid collision (and of catastrophic global warming).

Now we know what truly meaningful “quality of life” losses future generations may face: Irreversible destruction of our coasts, hundreds of millions of environmental refugees, whole regions of the planet in permanent or near-constant drought, and massive species extinction on land and sea, to name but a few. (And these impacts are the genuine threat to world peace that Al Gore has sought to warn people about, which justifies his Nobel Prize.)

Which brings us to the second question:

2. Will significant action on climate change require sacrificing our quality of life in any meaningful sense?

You don’t need to be an economist to realize the answer is a definite no. I ran the Office of Energy Efficiency and Renewable Energy under Clinton-Gore, and our research showed that action on climate change does mean we will have to spend a lot of money on carbon-free energy sources—but we will also save a lot of money over the long term. Consider that in terms of electricity consumption, the average Californian generates less than one-third the carbon dioxide emissions of the average American while paying the same annual bill.This has not required sacrifice, just intelligent regulations that encourage energy efficiency and clean energy.

According to a major PricewaterhouseCoopers study (PDF), we can reduce carbon emissions by around 60 percent by 2050, with a total reduction in GDP of just 2 percent to 3 percent. So, either we sacrifice one year of economic growth over the next four decades, or else the next 50 generations will have to sacrifice a livable climate. And this is very similar to the Stern Review’s conclusion that

Landsburg endorses in his final paragraph. Not a very tough choice—even for noneconomists.

Landsburg seems to believe that only economists can discuss climate change seriously, while the rest of us are wasting everyone's time: "If you're not talking about discount rates and levels of risk aversion, you're blathering." Landsburg's piece proves that you can talk about those things and still be blathering.

Steven E. Landsburg responds:

Nothing that Joe Romm (or Al Gore) can tell us about the dire effects of global warming can tell us how much we ought to spend to combat it. Should we spend 1 percent of our incomes? Five percent? Twenty percent? "A whole lot" is not a useful answer to that question.

Because future generations are among the beneficiaries of climate control, the appropriate expenditure level depends critically on the questions Mr. Romm would prefer to ignore: How much do we care about those future generations? How likely are they to be around in the first place? And how rich are they likely to be?

Those are hard questions. But a refusal to confront them is a refusal to take climate issues seriously. I think climate policy is important enough to think about. Mr. Romm, apparently, prefers to bury his head in the sand.