

PART I

GLOBAL WARMING

THE SUBJECT OF global warming makes people hot under the collar. Is it happening? Almost surely, according to the scientific consensus. Is it man made? Again, almost surely. Yet people who don't argue about other scientific consensuses do argue about this one.

Even whether to call it "global warming" or "global climate change" generates agitated debate. Some people say "global climate change" is more accurate because some regions will cool and others warm. Others argue that such a neutral term is less likely to generate action and that "warming" is more apt because on average, the climate is expected to warm.

The essays here ask whether action is merited, what action is merited, and how nations can credibly commit to act.

Nobel Laureate Thomas Schelling distinguishes what is certain from what is uncertain and argues that the uncertainties do not justify inaction and the certainties justify urgent action to develop technologies to combat and limit warming.

Nobel Laureate Kenneth Arrow takes a critical look at the recent Stern report and the question of whether the benefits of serious action justify the costs. Many have criticized the Stern report because it doesn't discount the future benefits of acting *now* to limit global warming *later*. In this essay, however, Arrow argues that the call to

action in the Stern report does not depend on that controversial assumption. Unless one unreasonably discounts the future, it makes sense to act.

Saying that the world must act is easier of course than getting it to happen. How can the free rider problem be overcome and nations be made to undertake costly action today for the sake of future generations in other nations tomorrow?

In the next essay, another Nobel Laureate, one of the editors of this volume and the journal *The Economists' Voice*, suggests that the way to get nations, and particularly the United States, to reduce CO₂ emissions significantly is to use trade sanctions. Joseph Stiglitz argues that the United States, and implicitly other nations who are doing little to curb emissions, are unfairly subsidizing their exports by not forcing manufacturers to pay the full cost of emissions. To avoid trade sanctions, nations should tax carbon emissions to reflect the long-term social cost of emissions. If trade sanctions could be used this way, one nation might force another to tax its emissions, not necessarily because it cares about the environment, but for the myriad reasons that a nation seeks to raise the cost of other nations' exports.

In the final essay, Sheila Olmstead of Yale and Robert Stavins of Harvard provide a detailed blueprint of what they think is a sensible and possible way forward. They propose in the second commitment period for Kyoto to expand participation to include all key countries. Step two is to use an extended time path for reductions so that the largest reductions occur after the current capital stock is exhausted and lower emissions technologies emerge. The key is to credibly commit today to future reductions so that these technologies do, in fact, emerge.