



**CHANGE THE FORECAST FOR WILDLIFE**  
SOLUTIONS TO GLOBAL WARMING

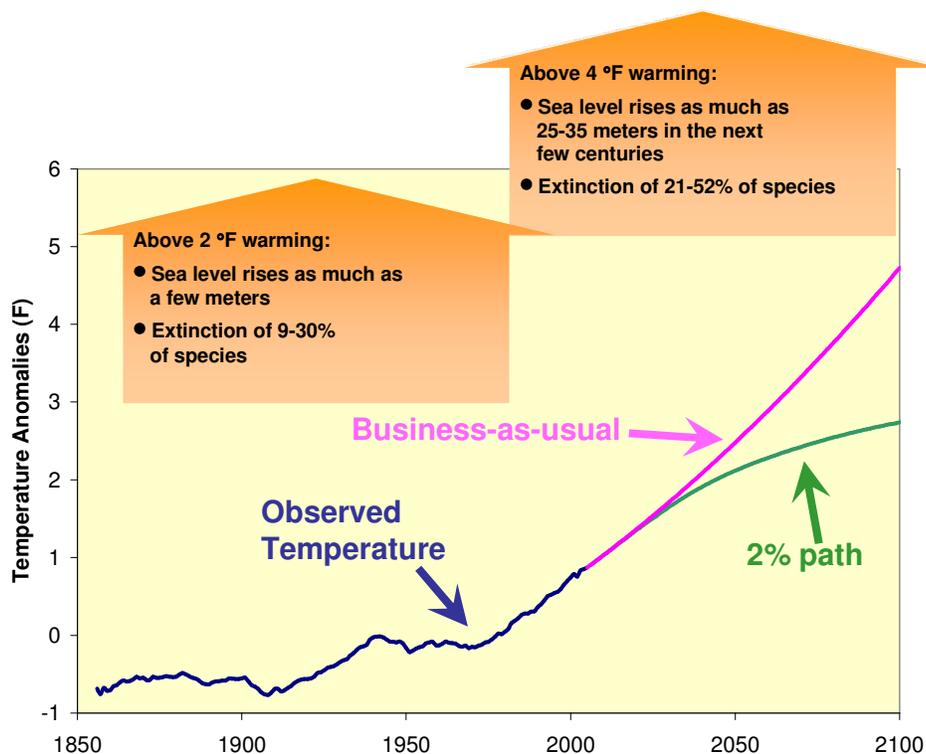
## Why 2% per year and how do we get there?

### Irreversible impacts expected if global temperature increases 2°F above current levels

Evidence of global warming already abounds, from significant declines in Arctic sea ice to shifts in bird and insect migration patterns to increasing incidence of wildfires. So far, few of these impacts can be considered irreversible: if we were somehow able to stop global warming today, chances are that nature would eventually shift back to its previous patterns. But, recent research indicates that if global average temperatures increase just a few degrees more, then we'll start to reach some "tipping points" where nature will not be able to easily rebound.

The last time in Earth's history that temperatures were 2°F above current temperatures, sea level was 16 feet above where it is now. When temperatures were last 4-6°F warmer, sea level was around 80 feet higher! When reporting these figures in recent papers, James Hansen of NASA's Goddard Institute for Space Studies noted that sea level probably won't increase faster than 3 feet per century, but there have been times in the past when it rose 15 feet per century<sup>1</sup>. Such a rapid sea level rise would cause havoc for coastal communities and ecosystems.

As many as a third of species are at risk of extinction if global temperatures exceed about 2°F above present day levels, according to the 2007 report of the Intergovernmental Panel on Climate Change (IPCC)<sup>2</sup>. These extinctions will be accompanied by major changes in how ecosystems are structured and function. In the United States, we're already seeing species shift their ranges further north and to higher elevations, changes in bird and insect migration patterns, and increased vulnerability of forests to wildfires and insect infestation.



<sup>1</sup> J. Hansen. "The Threat to the Planet." *The New York Review*. July 13, 2006. J. Hansen *et al.* "Global Temperature Change." *Proceedings of the National Academy of Sciences*. 103 (29): 14288-14293. Sept. 26, 2006.

<sup>2</sup> Intergovernmental Panel on Climate Change (IPCC). "Summary for Policymakers." *Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability*. April 6, 2007.

## Reducing greenhouse gas emissions by 2% per year slows global warming

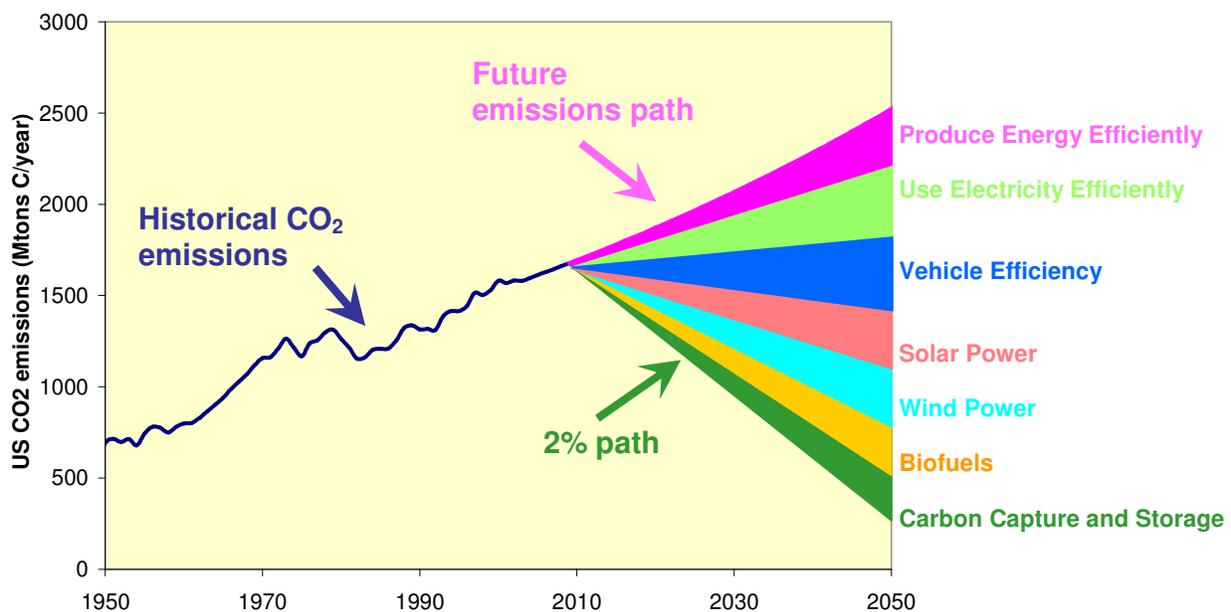
The only way to keep temperatures from warming more than 2°F in the next century is to begin taking steps immediately to reduce global warming pollution. To have a reasonable chance of staying below 2°F of warming, greenhouse gases in the atmosphere need to stay below about 400–450 parts per million of carbon dioxide equivalent<sup>3</sup>. If we're going to meet this goal, then the United States will need to reduce global emissions of carbon dioxide and other greenhouse gases by about 80% by 2050. That's 20% per decade or 2% per year.

We can't afford to delay taking action much longer. Scientists tell us that waiting to implement solutions will make it harder to keep warming below 2°F. And, economists tell us that waiting will make it more expensive<sup>4</sup>.

## We can meet the 2% per year goal using a combination of approaches

With existing technologies and know-how, we can begin reducing our global warming pollution over the next 50 years<sup>5</sup>. But, there's no silver bullet. We'll need to take advantage of multiple different strategies to reduce our dependence on fossil fuels. Some promising options include:

- getting more energy out of the fossil fuels that we do burn;
- using electricity and fuels more efficiently, whether it be in our cars or buildings;
- reducing our reliance on cars;
- utilizing renewable fuels, like solar, wind, and biofuels; and
- capturing carbon dioxide emissions before they reach the atmosphere and storing them deep underground.



<sup>3</sup> M. Meinshausen. "On the Risk of Overshooting 2°C." Presented at a scientific symposium on "Avoiding Dangerous Climate Change," MetOffice, Exeter, February 1-3, 2005.

<sup>4</sup> N. Stern *et al.* *The Economics of Climate Change*. Cambridge University Press, New York, 2007.

<sup>5</sup> S. Pacala and R. Socolow. "Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies." *Science*. 305: 968-972. Aug. 13, 2004.