Because decision making is inherently forward-looking, models of rationality would seem to imply that effective decision making can be aided by scientifically sound predictions. Moreover, science itself is often defined as a predictive enterprise, and reducing the uncertainty of scientific predictions is an oft-articulated goal of decision-relevant science. These ideas have been strongly embraced in policy approaches to climate change; indeed, predictions about the future of climate are central to the scientific and public framings of the climate problem. This presentation will discuss the limits of scientific predictions as a decision support tool, the role of predictions in the scientific enterprise, and the deeply problematic application of scientific predictions to climate policy. The presenter will offer guidelines for the appropriate application of predictions to decision making; almost all of these guidelines are violated in the case of climate change.