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Despite 193 countries adopting the Paris Agreement on climate change in 2015, and its entrance into force in November 2016, the issue of climate change is still hotly debated. People question the realism of both the targets—limiting global temperature rise this century to “well below 2°C above pre-industrial levels”—and the pace of a transformation of the global energy system to low-carbon options. In addition, the new US administration brings the issue of uncertainty in measuring the impact of human activity on climate as a reason to continue the debate on



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Communicating science-based pathways to policymakers

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climate change. In some cases, framing the issue as a question of uncertainty leads to an argument that we should wait to act. Maybe we should wait and see if the impacts are indeed as bad as some researchers describe? Maybe we should wait and see if technological invention (like cheap energy storage or biomass with carbon capture) will solve the issue of reliance on fossil fuels? Maybe we should wait until the next election cycle and leave this problem to the next policymakers?

A more productive way is to frame the issue of global change as a risk problem. It is true that we still cannot provide exact numbers or specific forecasts for a certain impact in a certain region, but nevertheless, decisions have to be made. When you frame it as a risk problem, then you need to be prepared for bad outcomes, whatever they are. We constantly make these kinds of decisions: Should we let our teenager drive a car? Should we buy travel insurance? Formulating the issue

as a risk assessment calls for a preparation for potentially bad outcomes and finding ways to mitigate them. Our research at the MIT Joint Program on the Science and Policy of Global Change shows that even limited actions towards reducing greenhouse gas emissions results in a substantial reduction in the risk of exceeding a certain temperature threshold. Even if we cannot predict the climate and its impacts with precision, especially at regional and local levels, that does not mean that the best strategy is to do nothing.

The world is already making progress towards addressing climate change: in particular there has been tremendous progress in bringing the costs of renewable energy down. But there are still many challenges in making low-carbon energy competitive with traditional energy sources. Policymakers face the issue that the results of emission reduction activities will be far in the future, while the changes in energy choices have to be made

today. In many parts of the world, these energy choices have to be made simultaneously with choices about combating hunger and poverty. In many cases, policymakers prioritize providing power to homes, hospitals, schools, and new industries, while delaying the issue of emission reductions. Policymakers are in urgent need of a reliable assessment of how their economic development goals can be combined with environmental and climate change mitigation goals: What are the trade-offs in meeting these goals? How will the local conditions affect the choice of the policy instruments and the magnitude of action? The IIASA World in 2050 project provides a great opportunity for a science-based discussion of the viability of these multiple goals of sustainable development. This is a great undertaking as we need to improve our communication to policymakers about how to pursue social development goals and reap the benefits of economic growth and a better environment. ■