When the IPCC released its latest climate science report a few weeks ago, many commentators observed that the report should heighten our sense of urgency about climate action. Most of that discussion was at a very general level. It's worth taking a closer look at some key findings and their policy implications. Here, I want to focus on several key points in the report.

The 1.5 °C target. The Paris agreement calls for capping warming as near as possible to 1.5° for avoiding dangerous warming. The window for doing so seems to be closing. The report points out that under all of the illustrative scenarios it considered, "there is at least a greater than 50% likelihood that global warming will reach or exceed 1.5° C in the near-term, even for the very low greenhouse gas emissions scenario." Using carbon capture, we may be able come back to that level even if we temporarily exceed it. That's not a cure-all, however, even if we can do it. The report also says that: "Additional warming, e.g., above 1.5° C during an overshoot period this century, will result in irreversible impacts on certain ecosystems with low resilience, such as polar, mountain, and coastal ecosystems, impacted by icesheet, glacier melt, or by accelerating and higher committed sea level rise." These findings both emphasize the urgency of reducing emissions and the likelihood that we will have to deal with serious climate impacts beyond what we've already seen.

The pace of change. Another point relates to the pace of global change and of our ability to adapt: Compared with its prior report in 2014, the 2022 report concludes that "levels of risk for all Reasons for Concern (RFC) are assessed to become high to very high at lower global warming levels" than previous expected. As of today, the "extent and magnitude of climate change impacts are larger than estimated in previous assessments." These findings have two important policy implications.

First, current estimates of the social cost of carbon need to be recalibrated. These models give greater weight to events in the near future than further ahead. If climate impacts are arriving faster than expected, this should increase a model's estimate of the social cost of carbon. That's true even if impacts ultimately stabilize at the same level as previous expected — the increase in pace is significant on its own. Moreover, the report make it dubious that climate impacts will stabilize at the same level as previously expected, given that dangerous risk levels are expected to occur at lower temperatures.

Second, we don't have as much time for adaptation as we were expecting. A lot of the institutional processes for adaptation are just getting started in many places. We are going to have to find ways to move more quickly to improve water management during droughts, deal with increasing flood risks, develop new plant varieties for a changed climate, and take precautions against heat waves.

Adaptation barriers. Adaptation efforts face hard limits based on feasibility. For instance, it may be too late to prevent further ice melts in many parts of the world, no matter what we do. Adaptation efforts also face soft limits due societal barriers to adaptation. According to the report, “soft limits to some human adaptation have been reached, but can be overcome by addressing a range of constraints, which primarily consist of financial, governance, institutional and policy constraints.”

The fact that we’ve already begun to hit those barriers in some places isn’t a particularly good sign. We need to devote more effort to establishing the right institutional structures, policies, and financing to deal with the much bigger adaptation challenges ahead.

The bottom line. Climate impacts are higher than expected at current temperatures, and future risks will be coming sooner than expected. We need to bear down on emissions reductions and start work immediately to get ready for major adaptation initiatives.