# FIVE KEY TAKEAWAYS

This second edition of the *Artificial Intelligence for Climate Change Mitigation Roadmap* explores many topics in considerable detail. For those of you interested in a quick summary of our main messages, here are five.

1.   Artificial intelligence (AI) has the potential to make very significant contributions to climate change mitigation in the years ahead. This includes incremental gains (such as increasing output at solar farms and improving energy efficiency in buildings) and transformational gains (such as helping discover important new materials for clean energy technologies).

2.   Greenhouse gas (GHG) emissions from computing operations for AI are less than 1%—and perhaps much less than 1%—of global GHG emissions. These emissions will very likely increase in the years ahead, in amounts that could be modest or significant.

3.   The main barriers to realizing AI's potential to help reduce GHG emissions are lack of data and lack of trained personnel. Governments, companies and educational institutions should work together to overcome these barriers.

4.   Trust in AI systems is essential for AI to deliver substantial benefits for climate change mitigation. For AI to be trustworthy and trusted, risks related to bias, privacy, misinformation, disinformation, safety, security and other issues must be addressed.

5.   Every organization with a role in climate change mitigation should consider opportunities for AI to contribute to its work.

The 17 chapters and 338 pages of this Roadmap explore these topics and others, discussing current applications of AI in reducing GHG emissions, future possibilities, risks, barriers, policy options and other topics, noting the limits of current knowledge. We hope the Roadmap is a useful resource for you.