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Given the extent of potential risks due to climate change, it is clear that remaining on a path of increased greenhouse gas emissions will only increase Maryland's exposure. While reducing emissions can mitigate much of the climate risk to Maryland, some climatic changes are already "baked in" as result of past business decisions that increased the level of greenhouse gas emissions. Furthermore, decision-makers at all levels may have limited ability to directly influence attempts to limit or reduce emissions. Understanding the limitations of action toward mitigation, decision-makers can instead choose to focus on reducing risk through behavioral change and "defensive investments" – two general forms of adaptation practice<sup>16</sup>.

Potential gains from adaptation measures, however, are generally unknown and are not included in the Risky Business Project report or incorporated into the ACP cost analyses. Farmers benefiting from longer growing seasons due to increased temperatures may have to invest in improved irrigation infrastructure or crop varieties better suited for warmer climates. People opting to utilize air conditioning will reduce heat-related risks, but at the consequence of higher energy costs. Utilities may be forced to invest in infrastructure upgrades to keep up with changes in demand. Governments may be forced to invest in developing or improving infrastructure to protect economic interests.

Decision-makers may also choose not to partake in adaptive measures. This may be due to high investment costs, scale of action, and a general lack of information and awareness of the climate change issue. Because of these non-quantifiable variables and uncertainty in future changes in behavior, adaptation should not be seen as a substitute for mitigation efforts, but rather as a complement to mitigation policies focusing on reducing greenhouse gas emissions and minimizing risks associated with climate change.

## Summary

The physical and economic impact data supplied by ACP identify not only the potential risks associated with climate change, but also the costs of climate change to specific sectors of Maryland's economy through the 21<sup>st</sup> century. These data examine not only the most likely physical and economic scenarios, given all three future emissions reduction tracks, but also the scenarios that, while less likely, could have greater impacts. Notably, no estimates are provided in the ACP of how climate change might affect water resources, ecosystems, or aspects of human health beyond heat-related mortality. And, potential gains from adaptation measures are not included in the Risky Business Project report or incorporated into the ACP cost analyses.

By continuing down the BAU path, it is likely that the number of days above 95°F will increase tenfold, the number of days below 32°F will decrease by half, and sea-level in the Chesapeake Bay region will increase an additional 3 feet. Moreover, there is a 90% likelihood of increased precipitation, especially during the spring and summer months. These climatological impacts translate to likely annual economic costs of over \$5.5 billion dollars within the labor, health, and energy sectors by 2100 with an additional \$15 billion dollars in property value at risk due to rising sea levels. However, opting for a scenario that

<sup>16</sup> ACP, p. 163



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