

October 21, 2019

Dear Fredericksburg City Council Members,

We are currently facing a climate crisis and we must take unprecedented measures to avoid global, national, and local catastrophes. As scientists with expertise in climate change, energy, and sustainability, we agree that the most achievable and urgent action is to stop our reliance on fossil fuels and transition to clean, renewable energy. We strongly support Fossil Free Fredericksburg's initiative to transition the City of Fredericksburg to 100% renewable energy by 2050. The city will be making a bold statement, joining over 100 U.S. cities, including Arlington and Blacksburg, which have already committed to a fossil free future, since it is clear that we cannot wait for the federal government and major corporations to take action.

As scientists, we are grounded in data and observations. Our Earth has seen a rise of 1°C in average global temperatures since the beginning of the industrial era, and temperatures are expected to rise 4°C by the end of the century if we do not take immediate action<sup>1</sup>. The most recent Intergovernmental Panel on Climate Change report, based on collective research from scientists around the world, outlines a grim future from climate change impacts even with a modest 2°C increase in global temperatures<sup>2</sup>. These impacts, such as extreme weather events, heat-related illnesses, and sea level rise, just to name a few, are already affecting our wellbeing and taking an economic toll on our communities. The Fourth National Climate Assessment published in 2018 stated that annual economic losses could exceed \$100 billion in multiple sectors by 2100<sup>3</sup>.

The good news is that despite these gloomy predictions it is not too late. We have the tools to transition to renewable energy and we have the momentum with recent global climate marches and student-led strikes. In addition, the positive effects of using renewable energy extend beyond reducing climate impacts, to include cleaner air and water and healthier, more resilient ecosystems and communities. There are also direct economic benefits since the price of electricity from renewable energy is now often less expensive than from fossil fuels.

The impacts of climate change are significant and will only worsen if we take no action. Polls show that three of four Americans are concerned about global warming and support policy changes towards a fossil free future, an unprecedented public mandate for action<sup>4</sup>. Fossil Free Fredericksburg has demonstrated that there are concerned, engaged citizens in our own community who are spearheading a strong local movement. We, the undersigned science professors at the University of Mary Washington and members of the Fredericksburg community, urge the Fredericksburg City Council to take a stand, in light of robust findings of climate science, and make this critical policy decision to commit to achieving 100% renewable energy as soon as possible, but no later than 2050.

Signed,

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<sup>1</sup> Sherwood, Steven C., Sandrine Bony, and Jean-Louis Dufresne. 2014. "Spread in Model Climate Sensitivity Traced to Atmospheric Convective Mixing." *Nature* 505 (January): 37.

<sup>2</sup> IPCC, 2013: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1535 pp, doi:10.1017/CBO9781107415324.

<sup>3</sup> USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II: Report-in-Brief [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 186 pp. doi: 10.7930/NCA4.2018.RiB.

<sup>4</sup> July 9-Aug. 5, 2019, Washington Post-Kaiser Family Foundations survey of 2,293 U.S. adults with an error margin of +/-3 percentage points.