OFFICIAL TESTIMONY
of
Bill Nye
More Than One Problem at a Time

For a Hearing on
"Examining Climate Change: A Threat to the Homeland"

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Subcommittee on Emergency Preparedness, Response and Recovery
of the Committee on Homeland Security

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Chairwoman Demings, Ranking Member Cammack and distinguished members of this subcommittee, thank you for the opportunity to testify before you today. It is an honor to share my thoughts on climate change and the threats our nation faces because of it.

My name is Bill Nye. These days, I am a science educator and television presenter. I may be known to you and your families as the *Science Guy*. I began my career as a mechanical engineer working at Boeing. My professional license is still in Washington State. I worked on aviation's F.E.M.A. acronym, Failure Effects and Modes Analysis. I was paid to solve physics problems and figure out what could go wrong on a 747 airplane. I learned a great many things: First, a modern jetliner is an amazingly reliable, extraordinarily safe machine, largely because it is subject to good regulations. Second, commercial airplanes only get into trouble, when they take off with something already broken. A system the crew thought was working isn't working, then several things can go wrong at once.

When it comes to climate change, the analogy to things already broken, along with multiple problems developing at the same time, is compelling. Suppose Russian hackers attacked the Colonial Pipeline, while a hurricane was coming ashore at Gulfport, Mobile, or Gainesville. Recently, the entire state of Texas was shut down, because it got a little chilly. It was the product of years of insufficient Failure Effects and Modes Analysis. It killed almost 200 people. Along with the heartache, the cost is estimated at 130 billion dollars. These miserable outcomes could have been avoided for a fraction of what we'll all end up paying. The pipeline hack was mean-

spirited and a lot of trouble; the mess in Texas was a disaster. But next time— or the next times, may be much, much worse.

Back in 1977, I took a course from Professor Carl Sagan. It eventually led to my current day job as CEO of The Planetary Society. Dr. Sagan often spoke of what he called *comparative planetology*. By comparing Earth's atmosphere with those of Mars and Venus, we have come to understand the importance of carbon dioxide and the greenhouse effect. Per predictions by researchers at Exxon going back at least to that same 1977, greenhouse gasses are inducing climate change here on Earth, and it is happening now on larger and larger scales: bigger storms, more floods, more droughts, more fires, more loss of shoreline, and more businesses and people displaced as the ocean swells. Therefore, the sooner we stop adding greenhouses gases to our air, the better off we have a chance of being. If we don't stop, more of these events will happen; more of them will happen at the same time, and that will increase the likelihood of convergent problems. Ask any Martian or Venusian.

Everything on an airplane, from the wheel under the nose to the light on the tip-top of the tail is there for a reason. Anything extra would add weight, which would shorten the range, make the plane less efficient and more costly to fly. Even with that in mind, airplanes are required to carry all sorts of emergency equipment: life vests, rafts, exit doors right in the middle that no one ever uses. You want the plane to have everything it needs to fly normally, but also everything it needs, when things go wrong.

In the same way, we don't want regulations we don't need. But when it comes to addressing climate change, regulations are essential. It is in everyone's best interest to have rules that require us to stop adding greenhouse gasses to our skies as soon as possible, while providing reliable clean energy, reliable clean water, and reliable internet service to everyone. Having healthy neighborhoods where things do not stop working, is a way to keep people healthy and working. This is where you all come in. We want all the rules we need to create all the systems we need.

I grew up here in Washington, DC. I rode my Schwinn bicycle to the first few Earth Day events on the National Mall. Back then, we emphasized individual actions. Every litter bit hurts, was one of the slogans. But when it comes to climate change, we need big ideas, huge ideas. Recycling water bottles alone will not address climate change or prepare us for disaster.

I know what many of us are feeling. Climate change is frightening. The effects and changes are so big and coming so fast that many of us are in denial about the consequences. I've come to believe that climate change contrarians especially are just scared. So am I. You've probably read recent reports concerning decreasing birth rates worldwide. Ask around. Women and men everywhere are thinking twice about bringing kids into a world that's on fire. It's time to take action now. Let's build utility systems that work all the time. Let's invest in robust electrical grids, excellent water supplies, and cyber-secure control schemes for all of our infrastructure, especially the internet. Let's stop pumping and dumping greenhouse gasses into the air we all share. We can do this.

In conclusion, I thank Chairwoman Demings, Ranking Member Cammack and the members of the subcommittee for allowing me to speak before you today. I appreciate the leadership this subcommittee has demonstrated on this important issue.

I look forward to your questions.

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