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I'm here to talk about climate change, but I'm not really an environmentalist. In fact, I've never really thought of myself as a nature person. I have never gone camping, never gone hiking, never even owned a pet. I've lived my whole life in cities, actually just one city. And while I like to take trips to visit nature, I always thought it was something that was happening elsewhere, far away, with all of modern life a fortress against its forces. In other words, like just about everybody I knew, I lived my life complacent and deluded about the threat from global warming. Which I took to be happening slowly, happening at a distance and representing only a modest threat to the way that I lived. In each of these ways, I was very, very wrong.

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Now most people, if they were telling you about climate change, will tell you a story about the future. If I was doing that, I would say, "According to the UN, if we don't change course, by the end of the century, we're likely to get about four degrees Celsius of warming." That would mean, some scientists believe, twice as much war, half as much food, a global GDP possibly 20 percent smaller than it would be without climate change. That's an impact that's deeper than the Great Depression, and it would be permanent.

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But the impacts are actually happening a lot faster than 2100. By just 2050, it's estimated, many of the biggest cities in South Asia and the Middle East will be almost literally unlivably hot in summer. These are cities that today are home to 10, 12, 15 million people. And in just three decades, you wouldn't be able to walk around outside in them without risking heatstroke or possibly death.

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The planet is now 1.1 degrees Celsius warmer than it was before industrialization. That may not sound like a lot, but it actually puts us entirely outside the window of temperatures that enclose all of human history. That means that everything we have ever known as a species, the evolution of the human animal, the development of agriculture, the development of rudimentary civilization and modern civilization and industrial civilization, everything we know about ourselves as biological creatures, as social creatures, as political creatures, all of it is the result of climate conditions we have already left behind. It's like we've landed on an entirely different planet, with an entirely different climate. And we now have to figure out what of the civilization that we've brought with us can endure these new conditions and what can't. And things will get worse from here.

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Now for a very long time, we were told that climate change was a slow saga. It started with the industrial revolution, and it had fallen to us to clean up the mess left by our grandparents so our grandchildren wouldn't be dealing with the results. It was a story of centuries. In fact, half of all of the emissions that have ever been produced from the burning of fossil fuels in the entire history of humanity have been produced in just the last 30 years. That's since Al Gore published his first book on warming. It's since the UN established its IPCC climate change body. We've done more damage since then than in all the centuries, all the millennia before.

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Now I'm 37 years old, which means my life contains this entire story. When I was born, the planet's climate seemed stable. Today, we are on the brink of catastrophe. The climate crisis is not the legacy of our ancestors. It is the work of a single generation. Ours.

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This may all sound like bad news. Which it is, really bad news. But it also contains, I think, some good news, at least relatively speaking. These impacts are terrifyingly large. But they are also, I think, exhilarating. Because they are ultimately a reflection of how much power we have over the climate. If we get to those hellish scenarios, it will be because we have made them happen, because we have chosen to make them happen. Which means we can choose to make other scenarios happen, too.

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Now that may seem too rosy to believe and the political obstacles are in fact enormous. But it is a simple fact -- the main driver of global warming is human action: How much carbon we put into the atmosphere. Our hands are on those levers. And we can write the story of the planet's climate future ourselves. Not just can -- but are. Since inaction is a kind of action, we'll be writing that story ourselves whether we like it or not. This is not just any story, all of us holding the future of the planet in our hands. It's the kind of story we used to recognize only in mythology and theology. A single generation that has brought the future of humanity into doubt now tasked with securing a new future.

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So what would that look like? It could mean solar arrays barnacling the planet, really everywhere you looked. It could mean if we developed better technology, we wouldn't even need to deploy them that broadly, because it's been estimated that just a sliver of the Sahara desert absorbs

enough solar power to provide all the world's energy needs. But we'd probably need a new electric grid, one that doesn't lose two-thirds of its power to waste heat, as is today the case in the US. We could use some more nuclear power, perhaps, although it would have to be an entirely different kind of nuclear power, because today's technology simply isn't cost-competitive with renewable energy whose costs are falling so rapidly.

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We'd need a new kind of plane, because I don't think it's particularly practical to ask the entire world to give up on air travel, especially as so much of the global South is, for the very first time, able to afford it. We need planes that won't produce carbon. We need a new kind of agriculture. Because we probably can't ask people to entirely give up on meat and go vegan, it would mean a new way of raising beef. Or perhaps an old way, since we already know that traditional pasturing practices can turn cattle farms from what are called carbon sources, which produce CO₂, into carbon sinks, which absorb them. If you prefer a techno solution, maybe we can grow some of that meat in the lab. Probably, we could also feed some real cattle seaweed, because that cuts their methane emissions by as much as 95 or 99 percent.

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Probably, we'd have to do all of these things, because as with every aspect of this puzzle, the problem is simply too vast and complicated to solve in any single silver-bullet way.

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And no matter how many solutions we deploy, we probably won't be able to decarbonize in time. That's the terrifying math that we face. We won't be able to beat climate change, only live with it and limit it. And that means we'd probably need some amount of what are called negative emissions, which take carbon out of the atmosphere as well. Billions of new trees, maybe trillions of new trees. And whole plantations of carbon-capture machines. Perhaps an industry twice or four times the size of today's oil and gas business to undo the damage that was done by those businesses in past decades.

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We would need a new kind of infrastructure, poured by a different kind of cement, because today, if cement were a country, it would be the world's third biggest emitter. And China is pouring as much cement every three years as the US poured in the entire 20th century. We would need to build seawalls and levees to protect those people living on the coast, many of whom are too poor to build them today, which is why it must mean an end to a narrowly nationalistic

geopolitics that allows us to define the suffering of those living elsewhere in the world as insignificant, when we even acknowledge it.

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This better future won't be easy. But the only obstacles are human ones. That may not be much of a comfort, if you know what I know about human brutality and indifference, but I promise you, it is better than the alternative. Science isn't stopping us from taking action, and neither is technology. We have the tools we need today to begin. Of course, we also have the tools we need to end global poverty, epidemic disease and the abuse of women as well. Which is why more than new tools, we need a new politics, a way of overcoming all those human obstacles -- our culture, our economics, our status quo bias, our disinterest in taking seriously anything that really scares us. Our shortsightedness. Our sense of self-interest. And the selfishness of the world's rich and powerful who have the least incentive to change anything. Now, they will suffer too, but not as much as those with the least, who have done the least to produce warming and have benefited the least from the processes that have brought us to this crisis point but will be burdened most in the decades ahead. A new politics would make the matter of managing that burden, where it falls and how heavily, the top priority of our time.

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No matter what we do, climate change will transform modern life. Some amount of warming is already baked in and is inevitable, which means probably some amount of additional suffering is, too. And even if we take dramatic action and avoid some of these truly terrifying worst-case scenarios, it would mean living on an entirely different planet. With a new politics, a new economics, a new relationship to technology and a new relationship to nature -- a whole new world. But a relatively livable one. Relatively prosperous. And green. Why not choose that one?

11:05

Thank you.

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(Applause)