1. **Hello, I am Pat Miller. My husband Steve and I are retired engineers and communications mgrs at the former Bell Labs in NJ. (Say hello, Steve.) We began THIS journey toward saving the world for our children and grandchildren a few yrs ago, when we were trained as Climate Reality Leaders and learned of the enormity of the climate crisis we face. [Start screen sharing.] This week we are participating with about 35,000 other CR Leaders in a global campaign called 24 Hours of Reality, where each of us is asked to spread the word by giving a CR presentation. The first section of slides we are showing are provided to us by CR. These are based on research and verifiable facts, and references are noted in the corners of slides. I will give this part of the talk. Then we have added our own view of what the clean energy future will be like in 2050, and what we need to do to get there, which will be given by Steve. [CR has pledged to plant a tree for each presenter and audience member who participates.]**
2. **Our work is advised by both Climate Reality and the Sierra Club Ready for 100 campaign, both nonprofit orgs. We founded the local org Middletown (NJ) for Clean Energy when we decided that we could make the biggest direct impact by working to drive our town and other towns around us toward 100% clean energy at the local level with this mission of leaving a legacy of a livable world for our children and grandchildren**
3. **This is the world we are trying to save. The picture was taken from Apollo 17 in 1972 and is sometimes called the Blue Marble. It reminds us that we are all connected, and that our actions have an impact on our entire planet.**
4. **And here is the reason that saving the world is so important to us personally – our 2 grandsons.**
5. **Photo of the sun shining over Earth’s horizon through the atmosphere. The atmos is not vast and limitless the way it looks to us. In reality, there is just a thin shell of atmosphere a few miles deep. If you drove a car straight up, it would get through it in a few minutes. .**
6. **These are smokestacks burning fossil fuels (coal, oil, gas). The sky is now an open sewer, and we are spewing 150 million tons of heat-trapping carbon pollution into it every day.**
7. **There are many sources of manmade global warming pollution: agriculture, forest fires, transportation. But the biggest source is the burning of fossil fuels.**
8. **As a result, the temperatures are going up very fast. It's unmistakably clear, -click- and the scientists are telling us that this year already has more than a 70 percent chance of being the hottest year ever measured with instruments. Make no mistake. Scientists agree: global warming is real, it is happening, and it is human-caused.**
9. **The fact is 19 of the 20 hottest years on record have occurred since 2001, according to NASA studies. Click- the hottest 5 are the last 5 years.**
10. **Miami recorded its hottest week ever last June.**
11. **Europe had the hottest year ever last year, and all these countries have set all-time heat records.**
12. **And in the world as a whole, -click- it's useful to remember that 93 percent of all this heat goes into the oceans, and this disrupts the water cycle.**
13. **We're seeing ocean temperatures also hit a new record last year, -click- and almost certainly again, this year. This makes ocean-based storms stronger and more destructive.**
14. **When all that water vapor comes over the land, the precipitation events increase, and when it rushes back to the sea, floods and mudslides increase.**
15. **In 2017, Hurr. Harvey’s strength was driven up by waters in the Gulf that were up to 7 degrees hotter than normal. It stayed around for 3 days and left 30 inches of rain over southeastern TX.**
16. **This past May this devastating storm in the Philippines affected half a million people.**
17. **As the air becomes warmer it can hold more moisture. The downpours get bigger, and we get inland flooding. This is a supercell of rain over Montana. See the little tree at the bottom right? That shows you the size of the storm. They are calling these things “rain bombs.”**
18. **We're also seeing the same pattern all over the world. As Pope Francis reminded the world powerfully, the poor are the ones most affected, and communities of color are most affected.**
19. **Here in the US, the Poor People's Campaign is campaigning against ecological devastation, along with racism and poverty and the other evils they've identified.**
20. **This is what parts of Tennessee looked like last Feb, after torrential rain.**
21. **And here is a scene in NJ last year.**
22. **If you look at the 10 counties most affected by flooding in the US, -click- 81 percent of the population is minority, on average.**
23. **Farmers were hurt last year in the prime farmland of the Midwest. Twenty million acres couldn't be farmed because of the massive downpours.**
24. **There was $20 billion in damages.**
25. **The same extra heat that causes these rain bombs and floods also causes droughts by sucking the moisture out of the topsoil, so the droughts take place more quickly.**
26. **And the drought this year in Europe. Poland has the worst drought in 100 years, Czech Republic the worst in 500 years.**
27. **Heat causes fires, and both have increased over years.**
28. **The US West has been on fire this year. Here is AZ in June. And we know about the devastation in CA and OR still ongoing.**
29. **This was last year in CA.**
30. **And we’ve all seen this picture from Australia last summer.**
31. **The reinsurance companies are pointing to all these climate-related disasters (and their costs) and tell us that this is completely unsustainable.**
32. **The heat is also melting the ice in Greenland. This glacier since 1935- click- has turned into water. -click-**
33. **NASA's estimate of the ice loss in Greenland shows us that it's four times faster than they had originally thought. . . .**
34. **The same thing is true in Antarctica, where the ice melting has accelerated dramatically. And when this massive amount of ice in those two regions melts, sea levels go up. And it’s already happening.**
35. **This shows cities most at risk from sea level rise, based on $s of assets. Miami is first. Our area – NY/Newark is 3rd. Most or all of the rest are in Asia and are highly populated. Anything we can do now to prevent or slow the worst will be much less expensive than after it happens. AND we’ll save lives, too.**
36. **In New York and Newark, $130 billion of real estate assets are at risk.**
37. **Sea level rise is the reason why this octopus showed up in a parking garage in Miami. In NJ at the shore, we also are experiencing what is called sunny day flooding several days a month during high tide.**
38. **US DOD predicts that climate change will lead to food and water shortages, disease, and more refugees.**
39. **Such as the refugees that have been coming from the middle East and eastern Europe since the Syrian drought and war. Or those coming to the US from Central Amer bc of drought and political instability.**
40. **The climate crisis is also a health crisis.**
41. **Let’s look at the pollution caused by burning fossil fuels. This map shows deaths from air pollution around the world. You can see China and India are the worst, and next Russia. But Europe, the US and Brazil are not looking so good either.**
42. **This is what the air looks like in parts of China. People can’t breathe it. It also makes people more vulnerable to the COVID-19 pandemic all over the world. The more the air pollution, the higher the death rate from COVID-19.**
43. **And again, we see this pattern show up worse among minority populations and poor populations. Black Americans are dying at a rate more than twice as high as white Americans from COVID-19.**
44. **We now risk losing both marine and land-based species to extinction. Many of these are critical to human life, such as the bees that pollinate a huge portion of our food crops.**
45. **Cash register – watch. Click-pause. The #1 threat to the global economy.**
46. **But there is HOPE. We are not doomed yet. We can still dig ourselves out of this mess, if we act now. We have the solutions at hand, in form of clean energy technology.**
47. **Look at the growing capacity of wind energy. With any new technology, the growth is often vastly more than predicted. Wind energy is growing exponentially.**
48. **NJ, along with other east coast states, is committed to building an offshore wind industry. We have contracts signed and are ready to build as soon as we get permits.**
49. **Solar is growing even faster than wind.**
50. **Solar and wind are now cheaper than fossil fuel and getting cheaper all the time. The price of solar has been dropping for 40 years. It has dropped by 95 percent in the last 20 years alone.**
51. **Batteries – ideally every wind or solar installation will be paired with battery storage to capture the excess energy when it is generated, and feed it into the grid during less sunny or windy times. This shows historical growth of storage.**
52. **And this. The projections forward show that this is a new trillion-dollar industry, which is going to make solar and wind even more useful.**
53. **Now, let’s look at transportation – the largest source of carbon pollution, responsible for almost half of all emissions. Electric vehicles have become increasingly popular in the last several years. And the price of EVs has come down to the point that in only 3 years from now they will become cheaper than gas vehicles, and will continue to drop while gas vehicles cost continues to rise.**
54. **All these companies are manufacturing EVs. All this new innovation means that clean energy jobs are growing in leaps and bounds.**
55. **Solar and wind technicians are the 2 fastest growing jobs in the US, and they pay well too. And the co’s have plenty of professional jobs like engineers, designers, marketing and IT. .**
56. **So, this is the state of clean energy today. Now we are going to give our personal crystal ball prediction of what will happen in the next 30 years. And I predict we WILL have a clean energy economy by 2050. Why do I know this? Because we are motivated to save the world for our children. We MUST do it.**
57. **AND, because the people are demanding it.**
58. **This is a picture of the global climate strike that happened last Sep and involved millions of young people and their adult supporters around the world. This is in NYC, which we attended to be able to hear 16-yr-old Swedish activist Greta Thunberg speak.**
59. **And the rising young Greta generation, they're leading the way. They are demanding a better world as they have every right to do.**
60. **And maybe the most convincing reason of all, the market and the innovators will drive us to 100% clean energy. They are simply leaving the fossil fuel dinosaurs in the dust.**
61. **Fossil fuel is a terrible investment -click-. Many producers have gone bankrupt during the COVID crisis, and no doubt others will follow. We personally do NOT invest in fossil fuels, and many large funds do not either.**
62. **I’m sure you know, in 2015, every country in the world joined the Paris Accord to get to zero GHG emissions by 2050. Click. And we in the US are still in, at least until Nov 4, 2020.**
63. **And all these 24 states, plus Puerto Rico, are still in.**
64. **And all these companies are still in. - click.**

**[Stop sharing.] And now Steve is going to bring this view down to the state, local and personal level where we can, and we ARE doing our part to get us and the world to 100% clean by 2050.**