**PRIOR SETUP: ARRANGE SCREENS; click SCREEN SHARE; click “SHARE COMPUTER SOUND; click Screen 2  
 My name is Steve Miller, a retired engineer and communication mgr at the former Bell Labs. My wife and I began this journey saving the world for our grandchildren a few years ago, when we learned of the enormity of the climate crisis.   
  
I have given yearly climate talks to Sierra Club, and will spend about 14 minutes focusing on new data that applies directly to NJ. The last section is 2020 work by Middletown for Clean Energy, informing each of US HOW to get to netzero by 2050.   
CLICK SHARE**

1. **Our work is advised by both Climate Reality and the Sierra Club Ready for 100 campaign. We focus on driving residents in our towns toward 100% clean energy.**
2. **The very high levels of world carbon pollution are driving up global temperatures. -CLICK- and we are now experiencing the hottest year ever measured. NJ is already 3.5 degrees F hotter- as is the rest of the NorthEast U.S.**
3. **BUT surface temps are only part of the problem.– 93% of all this heat goes into the oceans, and this disrupts the water cycle. CLICK tehen**
4. **We saw ocean temperatures hit a new record last year, -CLICK- and almost certainly again, this year. This makes ocean-based storms stronger and more destructive and drives sea level rise**
5. **On 9/14/2020, the weather services tracked 5 storms. The numbers are setting records for several reasons; the biggest is the ocean temps are warmer.. To date, Louisiana has been threatened 6 times, and experienced 2 major hurricanes. The remnants of Hurricane Delta are now delivering rain in NJ.**
6. **And we see torrential rains causing flooding in NJ, where rainfall intensity has been increasing because of climate change.**
7. **If you look at the 10 counties CLICK most affected by flooding in the US, -CLICK- 81 percent of the population is minority, on average.**
8. **But the extra heat quickly dries the land, and causes longer and deeper droughts. Exceptionally dry conditions have contributed to the US Western coast fires: that are expected to be finally extinguished in November. Something similar might happen to the pine barrens or other NJ forests.:**
9. **NASA's estimate of the ice loss in Greenland is four times faster than they had originally thought**
10. **The same thing is true in Antarctica, where the ice melting has accelerated dramatically. And as this massive amount of ice in those two regions melts, sea levels go up. NewJersey coast already has 1.5 feet sea level rise (although partly caused by land subsidence)**
11. **The climate crisis is also a health crisis. This map shows deaths from air pollution around the world. You can see China and India are the worst. But the US is not looking so good either.**
12. **Polluted air makes people more vulnerable to the COVID-19 pandemic all over the world. This data shows the more the air pollution, the higher the death rate from COVID-19.**
13. **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.**
14. **But there is HOPE, and NJ is now ACTING on the opportunities.**
15. **wind energy is growing exponentially.**
16. **Solar is growing even faster than wind.**
17. **. Solar and wind are now cheaper than fossil fuel and getting cheaper all the time. .**
18. **Transportation is the largest source of carbon pollution. Electric vehicles are increasingly popular and will soon -maybe 3-4 years - become cheaper than gas vehicles.**
19. **All these companies are manufacturing EVs. All this new innovation means that clean energy jobs are growing in leaps and bounds.**
20. **We will have a Clean Energy Future by 2050 because the people are demanding it.**
21. **This was a global climate strike, with millions of young people around the world. I attended the NY strike to be able to hear 16-yr-old Swedish activist Greta Thunberg speak**
22. **And the rising young Greta generation is leading the way. They are demanding a better world.**
23. **. The most convincing reason of all: the market and the innovators will drive us to 100% clean energy.**
24. **. Fossil fuel has been a terrible investment for the last decade. -CLICK- Producers are going bankrupt during the COVID crisis.**
25. **. And all these 24 states, including NJ, are still in**
26. **. And all these companies are still in. - CLICK.** 4000 cities, businesses, and organizations are joined to meet the Paris Agreement.   
    Three years ago, NJ elected a pro-climate governor. THIS HAS MADE A NIGHT AND DAY DIFFERENCE.   
    NJ is NOW working toward at least an 80% emission reduction by 2050  
    OUR NOVEMBER ELECTION, 3 weeks from now, is critical to make progress toward a zero emission goal by 2050.   
    Your responsibility Nov 3 is to elect leaders who are pro-climate.
27. NEW JERSEYS CLEAN ENERGY INITIATIVES  
    The basis of NJ work is at the bottom: the 2020 NJ Scientific Report on Climate Change. Google this, and read the initial 4 page executive summary of all the dire NJ forecasts.  
     So NJ IS ACTING as shown:  
    CAVEAT: for the last 2 years, I have joined 100s of others in weekly calls, asking the governor to STOP new fossil fuel infrastructure, HOWEVER, the gov has been slow to challenge the NJ entrenched fossil fuel base
28. NJ ENERGY MASTER PLAN (EMP)   
    The NJ Energy Master Plan has multiple strategies

* charging stations will be everywhere; Electric Vehicles explode in sales;
* More solar: increased building energy efficiency
* Support Environmental Justice Communities
* 2 months ago, we heard the 1st wave of grid modernization: smart electrical meters are on the way.

1. INTEGRATED ENERGY PLAN COST ANALYSIS  
   The Rocky Mountain institute, a key consultant, identified an almost free way to realize the NJ 2050 goals.
2. NJ TOP 6 SOLAR STATES: SOLAR PANELS ON 2 MILLION..  
   NJ is now #6 in the nation with solar on 2 million homes
3. NJ HAS GOAL OF 7,500 MW….  
   NJ is committed to 7,500 MW from offshore wind turbines – I calculate this is about 1/3 of current annual electrical usage in NJ.
4. YOUR (TYPICAL) GHG EMISSIONS  
   In order to tackle your State, your City, or YOUR OWN carbon pollution, you need to KNOW YOUR CARBON FOOTPRINT, and here is afast way:  
    This Pie Chart shows the 105 MMT GHG carbon “footprint” of residents of NJ. That is over 10 tons, per year, of heat-trapping pollution for every man/woman and child in NJ The largest source, by far, is transportation, shown in Green. 21% is use of electricity; ~30% is natural gas heating homes, business and industry. The outlier at top right is NEGATIVE 8% carbon sequestration – carbon is absorbed by forests & marshland.
5. MIDDLETOWN 2020 ENERGY PLAN GOALS  
   Our local organization, “Middletown for Clean Energy” modeled NJ and wrote the MIDDLETOWN ENERGY PLAN. We are fortunate: a NJ company called Sustainable Jersey sets the structure and work programs for Green Teams in 450 NJ cities. Those cities, are in position to champion GHG reductions. But you, the residents must push the town leaders. OR the ciities will be hopefully pushed by our newly elected leaders.
6. MIDDLETOWN ENERGY PLAN   
    starts with the 10 tons/year PER-PERSON SHARE of the NJ total.

* You can do the same thing in your town, and results would look similar:- just scale the bottom legend to your own city population
* The colored bars show emission reductions, achieved in the year 2030, for the 11 ACTIONS.
* The GREAT NEWS: All these ACTIONS, together, will result in 38% city-wide emission reduction by 2030 and 90% emission reduction by the year 2050, in line with the Paris agreement
* The top, dark green bar is the GHG REDUCTION from converting to 100% clean electricity by 2030. This is the most potent action (& can be done IMMEDIATELY) and will save 90,000 tons of carbon per year..
* The 2nd bar in dark blue is the reduction in vehicle pollution. in the year 2030,we expect 25% of on-road cars are electric The GHG saving is 50,000 tons/year
* We ask EACH OF YOU to PERSONALLY PUSH YOUR TOWN LEADERS. But Don’t wait. Tackle the biggest hitter on your own: 1. Switch your house to renewable electricity 2. Buy an electric car 3. Switch to heatpumps for your furnace and hot water tank 4. Fully insulate and seal your house.

1. What AM I TO DO??   
    you have multiple ways to switch to a renewable electric  
   - install rooftop solar –  
   OR – switch from your local electric utility to a supplier of choice. Use my web site for selection of the best current deal for 100% renewable electricity at lower cost than your current utility.  
   OR –subscribe to (future) “Community Solar”   
   OR (BIGGEST TOTAL REDUCTION) Ask your town to supply renewable electricity to all residents and businesses
2. Create a Rallying cry- just as we are doing in Middletown- to influence your town
3. NEW JERSEY RENEWABLE GOVERNMENT…  
    The legal name is Government Energy Aggregation. Your town becomes your electric supplier..  
   ASIDE: we had partial success this year: Middletown switched to renewable electricity for all 80 city electric accounts, at a 10% lower electric bill.   
   We are now asking the Middletown administration to supply the SAME deal to resident and business taxpayers
4. SWITCH TO PLUG-in ELECTRIC   
   Take advantage of state and federal rebates, and buy an electric or plug-in hybrid. Then recharge the EV with your household renewable electricity. You will zero out more than half of your household total emissions, just as I have done in my household, using electricity from Texas windpower!!
5. OTHER CHANGES WE WILL SEE IN 2050  
   HERE IS OUR CRYSTAL BALL: By 2050, we will see: building standards upgraded for 0 emissions. Worn out Appliances and furnaces will be replaced by electric heat pumps. All gas stations will be closed or converted to EV charging stations. Batteries will be longer range & faster charging . big HURRAY for a major drop in plastic packaging. And many (most?) people will be moving to a plant-based diet.
6. In closing, which path will you choose? Oil and gas money, or our children’s future? Speak up, act and vote like your world depends on it
7. Because your world depends on it!