OUR HOME

Source: NASA

100% CLEAN ENERGY
MIDDLETOWN, NJ

The Climate Reality Project®

100% Committed

Sierra Club

READY FOR 100%

EMPOWER NJ
NO FOSSIL FUEL PROJECTS

Our mission is to leave a legacy of a livable world for our children and grandchildren.

WHY WE WANT TO SAVE THE WORLD

We have the solutions at hand...

What can I do?

Personal Community Congregation State

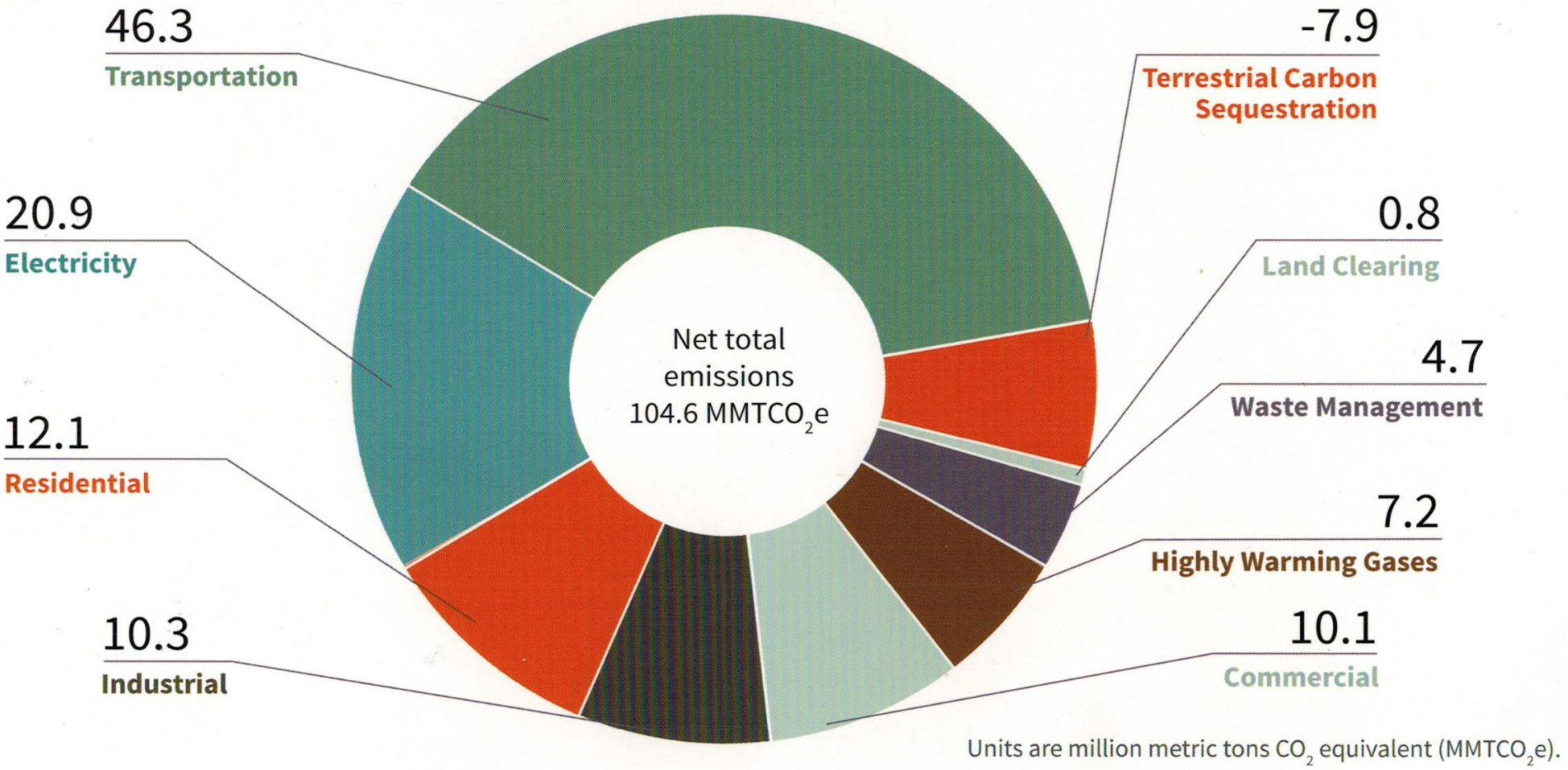
Your (Typical NJ) GHG Emissions

"Reducing NJ Greenhouse Gas Emissions", Rutgers, Jan 2018

2

WHAT ARE THE SOURCES OF GREENHOUSE GAS (GHG) EMISSIONS IN NEW JERSEY?

The transportation sector is the largest source of emissions in the state, followed by electricity generation and fossil fuel used in the residential, industrial and commercial sectors mainly for heating.



Units are million metric tons CO_2 equivalent ($MMTCO_2e$).

Personal Action

Top 3 Greenhouse Gas (GHG) Emissions Sources in NJ: 87% of All Emissions

- Electricity generation
- Transportation
- Residential and commercial buildings

REDUCE ALL 3

1st step: Energy Efficiency – Use Less Energy

Carbon Sequestration but No Solar

Tree Cover At High Noon

50 Foot Trees

Spare Circuits for Future Electric Appliances

New Box on Left for Future

- 2nd Heat Pump Space Heater/AC
- Heat Pump Water Heater
- Stove
- Dryer
- 2nd EV

Switch To Plug-in Electric Vehicle (EV)

- Plug Into Your Clean Electricity
- Save On Fuel Costs (~30-70% more efficient)
- Save On Car Maintenance

OUR EV – PRIUS PRIME PLUG-IN

Pool Heater – Electric Air to Water Heat Pump

FUTURE STEP: “Hybrid” Water Heater is Similar Heat Pump

Which one is the heat pump? Gas furnace backup on right

Heating for New Home Addition

Mini-Split Heat Pump for 1-2 Rooms

COMMUNITY ACTIONS

COMMUNITY ACTIONS

ACTION IN MIDDLETOWN

- Created MIDDLETOWN FOR CLEAN ENERGY
- Assembled 170 signed petitions (160 on email list); met in public forums (200 others in nearby towns are a separate email list)
- We met with all elected leaders and key department heads and presented our stories - we were asked to create an energy plan. (Energy Plan is now in queue for Middletown Master Plan. NJ state is now requesting energy plans from EVERY NJ town)
- Middletown Green Team achieved Silver certification under “Sustainable Jersey”
- Pushed for Middletown to adopt 100% renewable electricity (3rd party electric suppliers) for municipal and residents/businesses. Middletown buildings are now using renewable electricity. Residents awaiting 100% electric when price comes down. 8 nearby towns in coalition to have REGIONAL renewable electric.
- HELPED OTHER TOWNS: talks, Green Team initiatives, …
- Created web sites (climate; 100% electric);

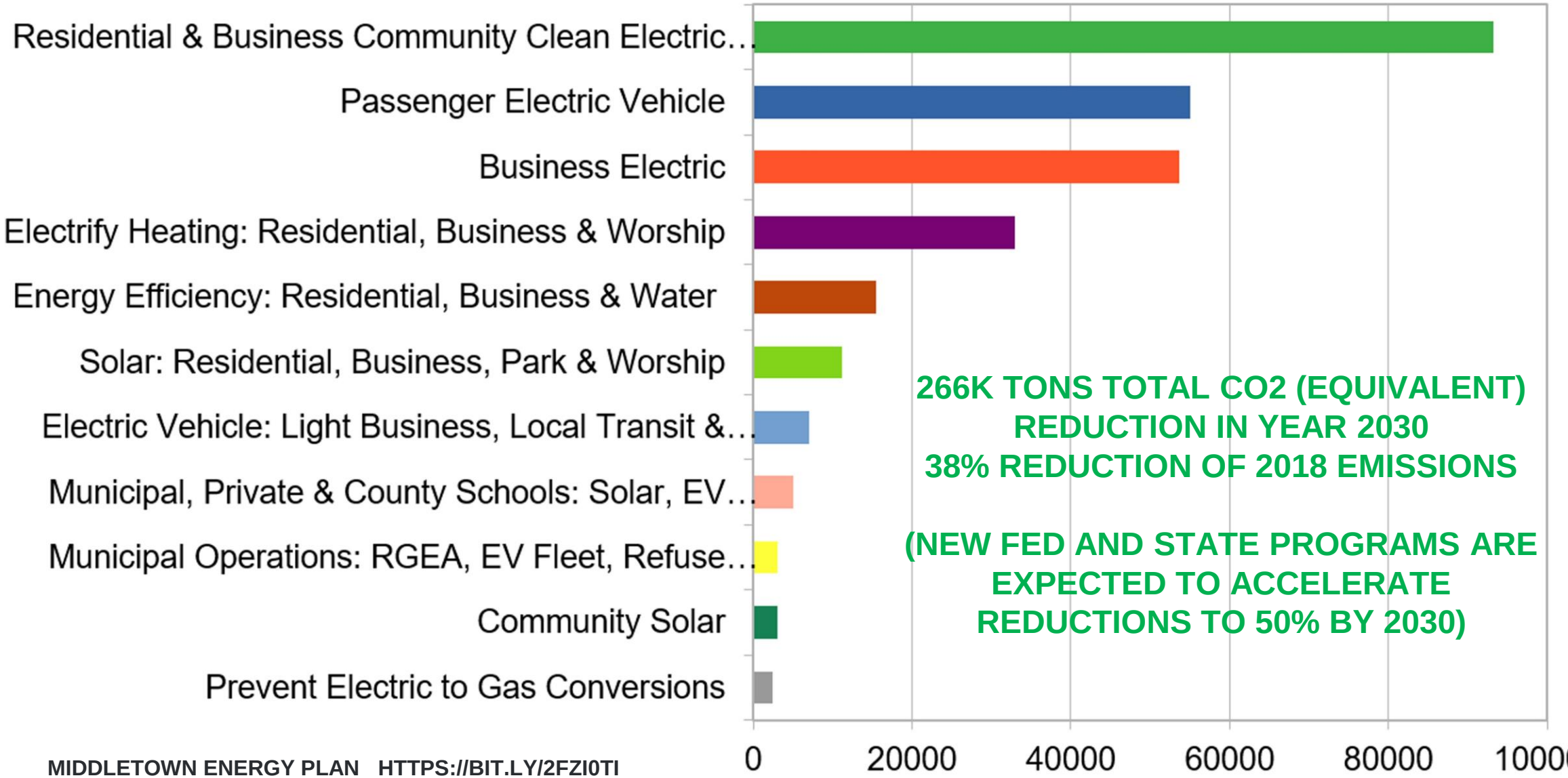

People’s Climate March 2018


Our First Sierra Club Talk

Citizen Action: Lobbying Middletown

Middletown Energy Plan: GHG emission reductions during year 2030

In 2018, Middletown emissions were 705K Tons (CO2 equiv)- calc per capita of NJ total



266K TONS TOTAL CO2 (EQUIVALENT) REDUCTION IN YEAR 2030
38% REDUCTION OF 2018 EMISSIONS

(NEW FED AND STATE PROGRAMS ARE EXPECTED TO ACCELERATE REDUCTIONS TO 50% BY 2030)

ELIMINATE MAJORITY OF GREEN HOUSE GAS EMISSIONS

(3 STEPS)

1. **SWITCH TO RENEWABLE ELECTRICITY** HTTPS://ELECTRIC.SMILLER.ORG

- ASK YOUR CITY TO SUPPLY COMMUNITY CLEAN ELECTRICITY AGGREGATION
- INSTALL ROOFTOP SOLAR OR SUBSCRIBE TO COMMUNITY SOLAR (2022)
- SWITCH TO 3RD PARTY RENEWABLE SUPPLIER

2. **TRANSPORTATION** (WHEN EXISTING CARS WEAR OUT):

- REPLACE WITH HYBRID, PLUG-IN HYBRID, AND THEN EV

3. **ELECTRIFY HOME** (AS APPLIANCES WEAR OUT, REPLACE WITH ENERGY STAR ELECTRIC)

- ENERGY EFFICIENCY AUDIT (INSULATE AND SEAL)
- REPLACE APPLIANCES (REPLACE WATER HEATER WITH HEAT PUMP)
- REPLACE BOTH A/C AND FURNACE WITH ONE COLD WEATHER HEAT PUMP

Congregation Actions

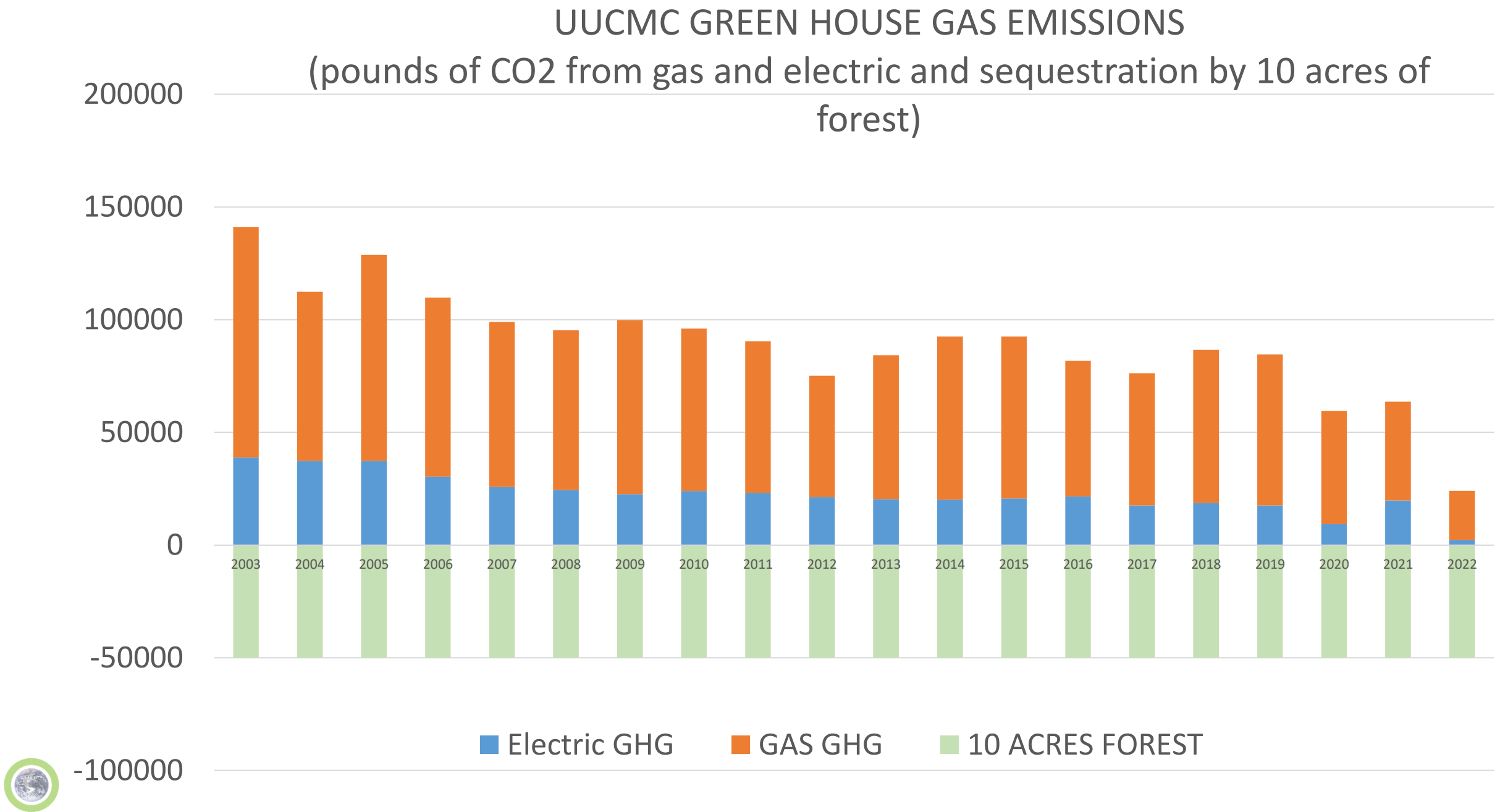
OUR ACTIONS IN UUCMC, Lincroft, NJ

CONGREGATION ACTIONS

- “Dialog” talks (before Covid)
- Re-launched the Climate Action Team
- Installed 47MW rooftop solar (part of committee)
- Identifying 20 years of progress to reach current “Net Zero” GHG
- Sponsoring a large screen TV wall-mounted display of current activities (1st will be solar display and Climate Action Team)
- Providing weekly eBlast updates (for last 5 months)
    - Sign a petition or letter on current hot button
    - Choose a “Drawdown-DD” type cause to reduce GHG
- Creating the Earth Day Sunday Service, April 24. Features 20 years of GHG reduction- and features the leaders each talking about their contribution. Purpose: lead congregation by example

UUCMC 2022 Rooftop Solar

UUCMC 2021 Heat Pumps


UUCMC GREEN HOUSE GAS EMISSIONS
(pounds of CO2 from gas and electric and sequestration by 10 acres of forest)
200000
150000
100000
50000
0
-50000
-100000
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Electric GHG
GAS GHG
10 ACRES FOREST

NJ STATE ACTIONS

NJ-WIDE ACTIONS
CREATED 50X30 Team (50% GHG reduction by 2030)

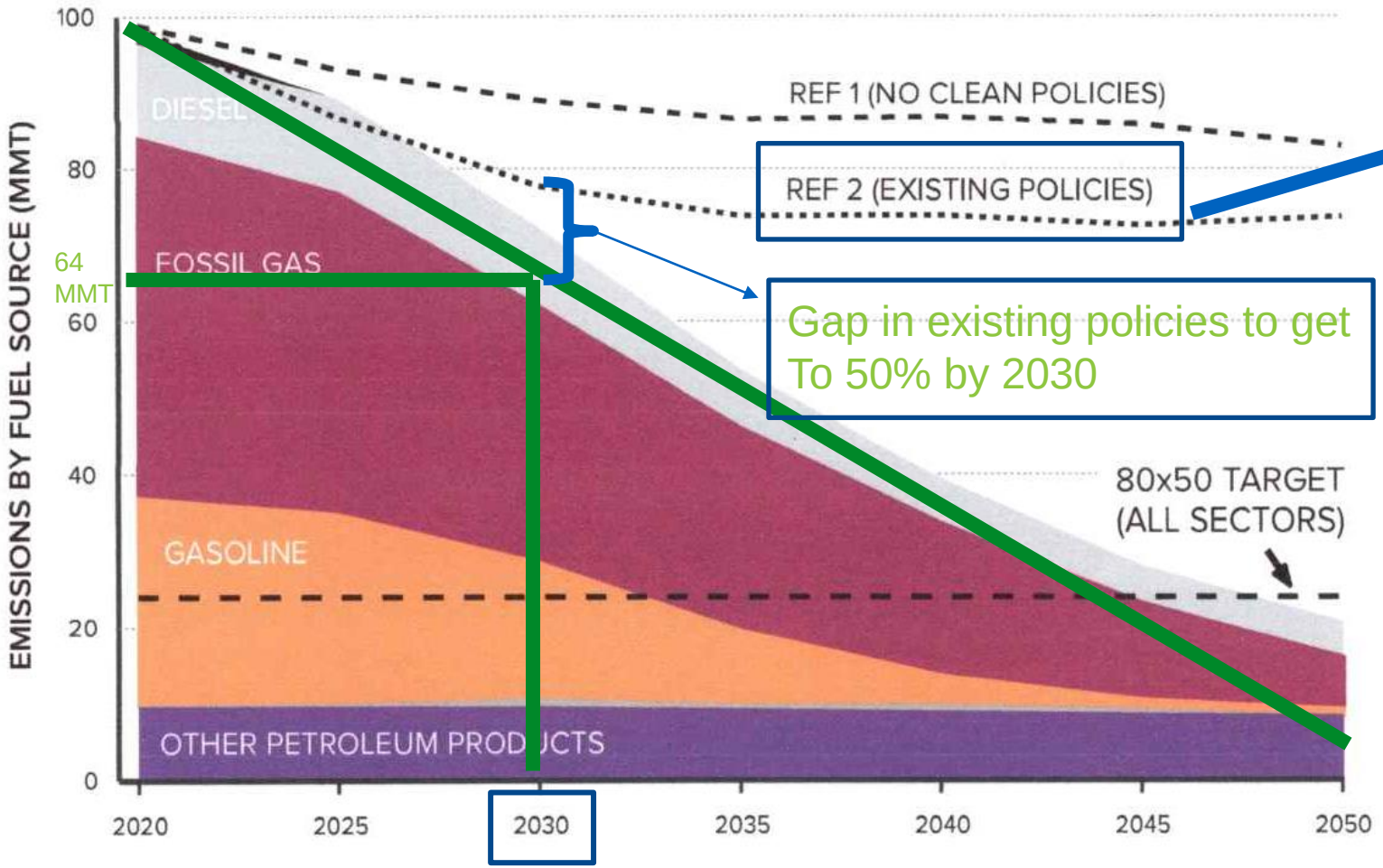
- Our large group FIRST worked with the Governor's energy policy staff, and with other NJ leaders, and THEN wrote a jointly—signed letter to the governor, asking for a goal of 50% reduction by 2030.
- A month later, the NJ Governor signed an Executive Order creating a NJ goal of 50% GHG reduction by 2030

(We NOW are leveraging our new club!)

New Jersey's 2019 Integrated Energy Plan - https://nj.gov/emp/
Policy increases to get to 50% by 2030

FIGURE 7.

Energy Emissions by Fuel Source, Least Cost Scenario



Clean Energy Act of 2018 –Ref 2

The Clean Energy Act of 2018 was enacted by Governor Murphy in May 2018 and included the following:

Energy storage goal of 600 MW by 2021 and 2,000 MW by 2030

Class I RPS of 21% by 2021, 35% by 2025 and 50% by 2030 with a cap of 7% on the total cost .

Modify or replace the SREC program

A community solar program

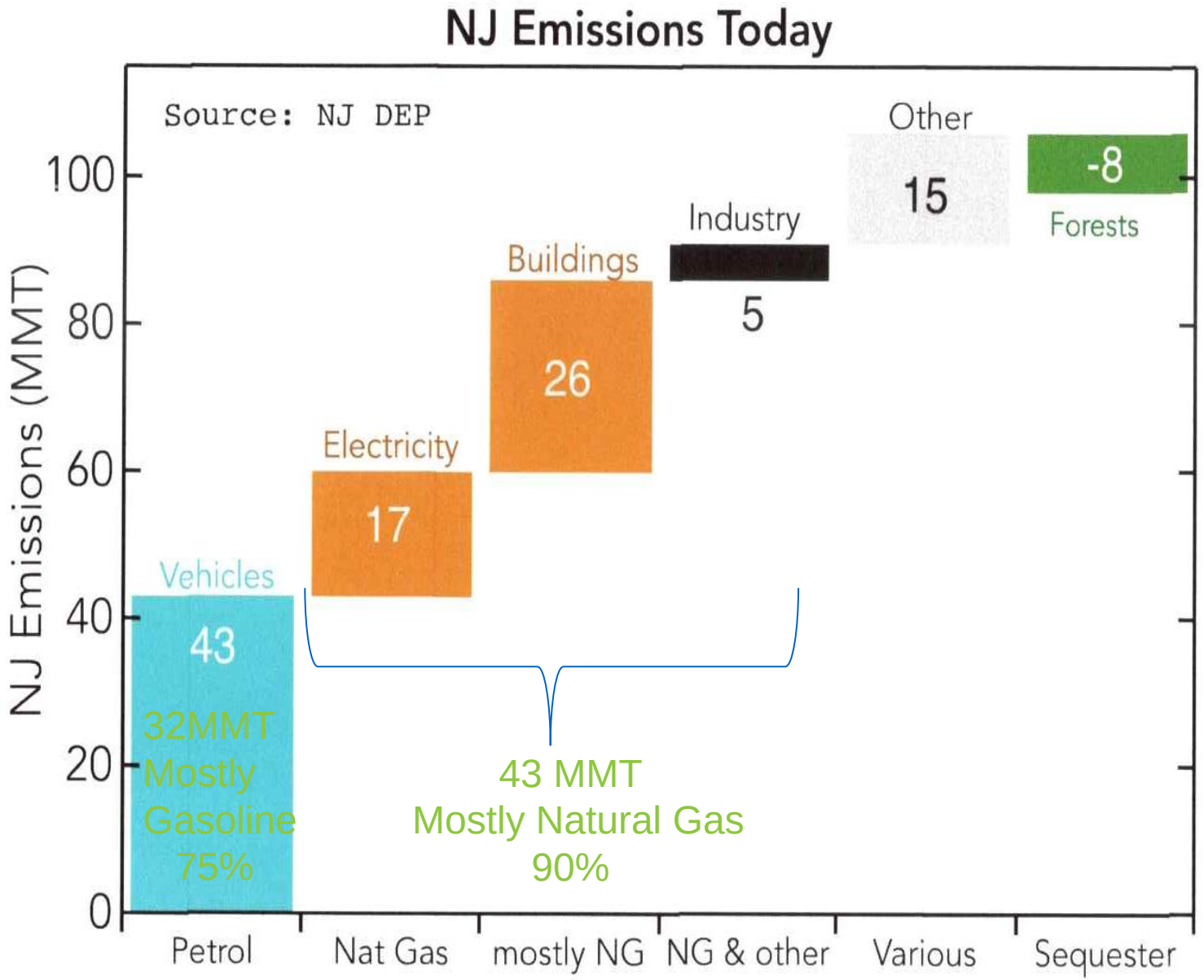
Utility EE goals of 2% annually for electricity and 0.75% for natural gas

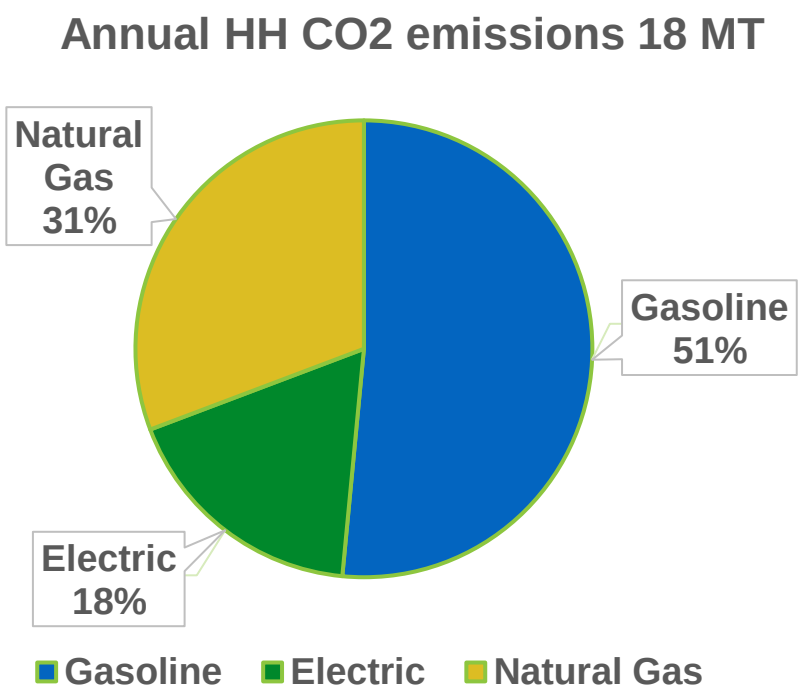
OSW goal of 3,500 MW

To get to 50% by 2030 Requires more than the 2019 EMP or about 8 MMT less

NJDEP 2019 GHG emissions inventory including sequestered GHG emissions of 8 MMT

New Jersey's 2019 Integrated Energy Plan - https://nj.gov/emp/





Building Electrification to Reduce GHG

- In NJ plans are underway to reduce **transportation** emissions by electrification of vehicles.
- Plans are underway to increase **clean electricity** via wind and solar.
- We cannot reach 50% reduction by 2030 without **building electrification**.
    - Leverage 15 other states have initiated pilot programs (may not be statewide) of building electrification

CREATED A STATE-WIDE 50X30 BUILDING ELECTRIFICATION (BE) Team

(sponsored by over 100 NJ Environmental organizations)

- Created Document Library; Settled process to interactively work on common docs
- Created **Objectives**
- Created **Tactics and Actions** to reach objectives
- **Chose two Primary Tactics:**
  - **Greatly Speed up Governor and Administration (DEP, BPU, Building Code Div) support for BE**
  - **Greatly Speed up NJ legislation supporting BE**
- The 50x30 Team Split into Admin Subteam, and Legislative Subteam
- Continue monthly Heat Pump webinars

50X30 BUILDING ELECTRIFICATION (BE) Team STATUS (4/6/2022)

ADMIN SUBTEAM

- Generated Draft Policy Paper
- Generated Draft Cover letter to Governor and Administration Leaders
- Summit meeting is April 14 to finalize (and make a big splash)

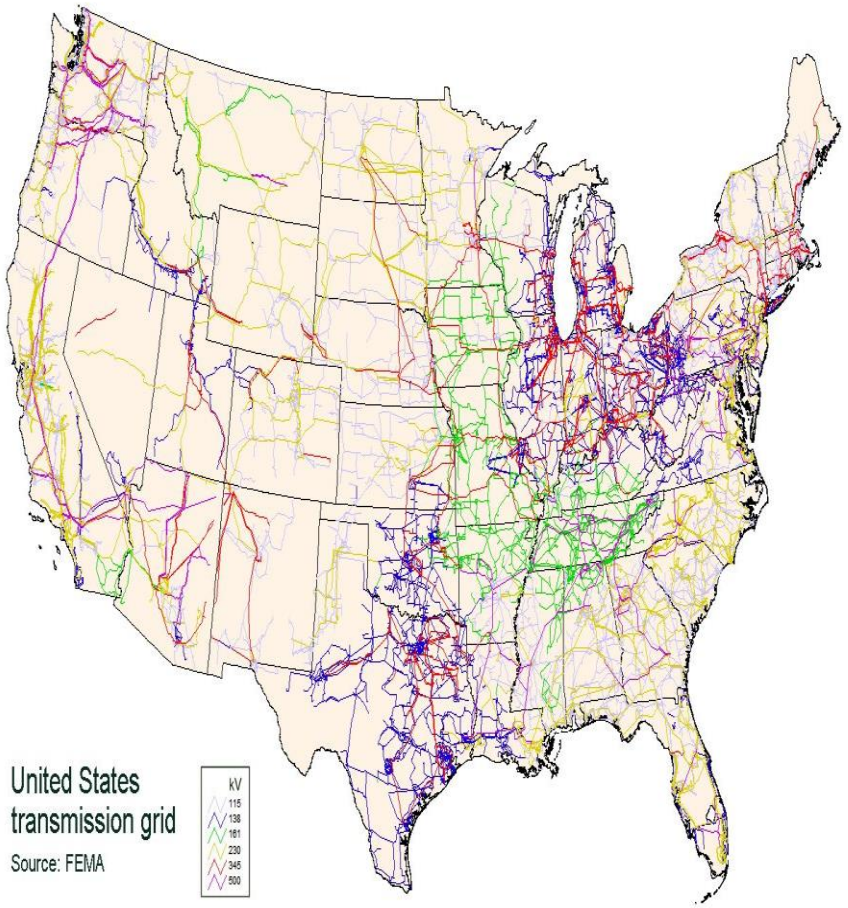
LEGISLATIVE TEAM

- Identified key Senators and Assemblymen – and their pending bills
- Identifying areas we want to amend/change
  (leveraging best provisions from other leading states)
- Gathering Comments (written & verbal) on future Building Code to quickly reach Zero Ready and NetZero buildings for new and refurb buildings

HVAC AND PUBLIC AWARNESS

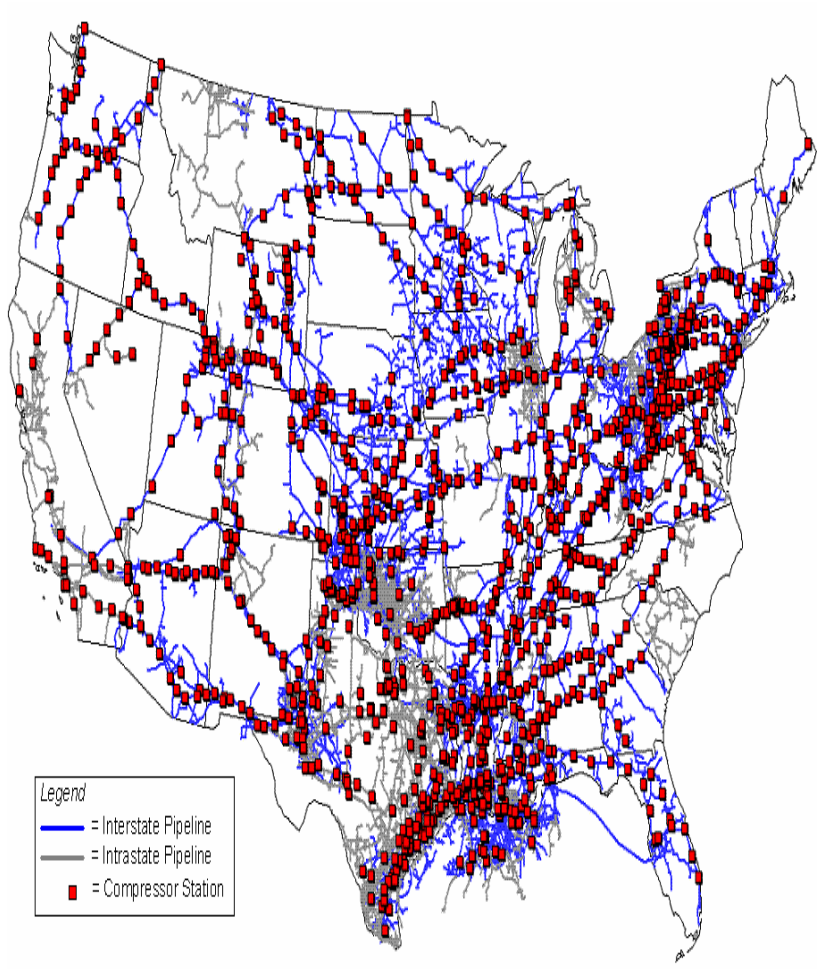
- Continue Monthly Webinars on Heat Pumps

The current US Energy System of pipes and wires are large enough to transverse the US over 200 times And is over $1.2 trillion – almost 6% of US GDP. The fossil fuel industry is a LARGE opponent!

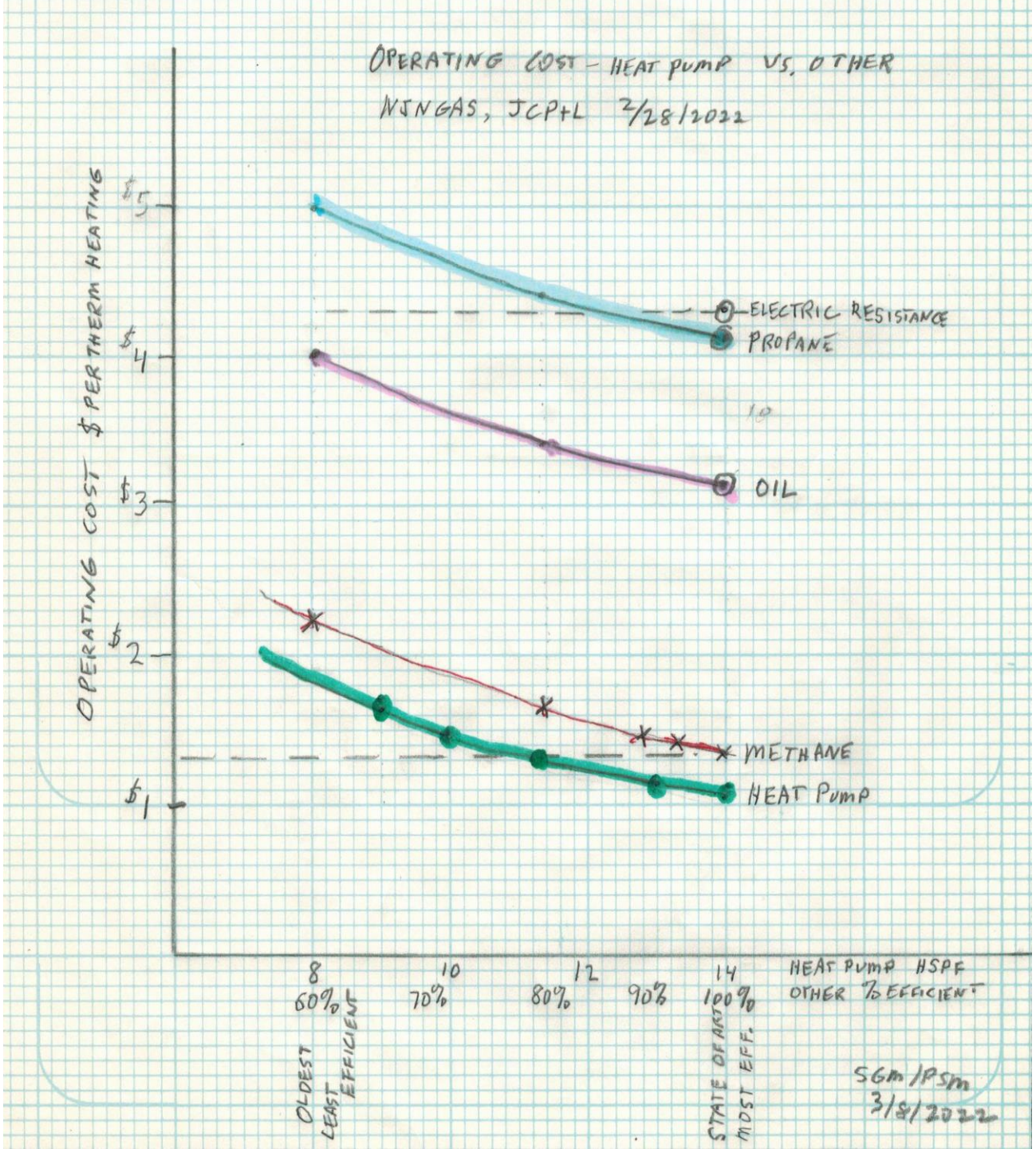


200,000 miles of electric transmission wires and 5.5 million miles of distribution wires

193,000 miles of fuel oil pipelines in US



300,000 miles of inter and intrastate natural gas pipelines and 2.1 M miles of distribution pipes


OPERATING COST – HEAT PUMP VS. OTHER
NJNGAS, JCP+L 2/28/2022
OPERATING COST $ PER THERM HEATING
$5
$4
$3
$2
$1
ELECTRIC RESISTANCE
PROPANE
OIL
METHANE
HEAT PUMP
8
10
12
14
HEAT PUMP HSPF
OTHER % EFFICIENT
60%
70%
80%
90%
100%
OLDEST LEAST EFFICIENT
STATE OF ART MOST EFF.
SGM/PSM
3/8/2022

TOGETHER WE CAN SAVE OUR WORLD

Source: NASA