This section summarizes Middletown's key energy saving and estimated GHG reduction scenarios projected to have significant impact in the first 10 years of the plan. GHG (carbon) reduction is expressed in terms of carbon dioxide equivalent. Estimates may change based on changes in assumptions and information. The estimates do not include an assessment of the probability of any individual scenario being implemented, as each scenario requires a tangible and actionable plan committed and underway relatively soon in order to achieve the estimated results. Not all possible savings are currently included; others may be added during the initial 10-year period or later. Rationales for each scenario are provided in Table 1 and subsequent sections.

Chart 1 Representative Scenarios for Middletown GHG (Carbon) Emission Reduction

(Pie chart shows est. tons of GHG emission reduction for each scenario in 2030 relative to 2018)

(Reduction pie slices total 270K tons or 38% of Middletown's 705K pro-rata tons in 2018)



Figure 1 Combined Middletown GHG (Carbon) Emission Reduction Scenarios
Compared to New Jersey EMP Goal[[1]](#endnote-1) (Pro Rata Middletown)

Notes:

1. The quasi-linear modeled future projection is based on the adoption of the initial set of scenarios only. We expect that many positive forces over the next 30 years will combine to “bend” this line downward toward zero emissions: the addition of more carbon reduction actions, market forces, and state and federal policies and incentives.
2. Middletown’s share of NJ total annual carbon emissions is calculated to be ~705,000 tons in 2018. This is calculated from Middletown’s per capita share, about 0.7%, of NJ total emissions. Figure 2 page 24 of 2019 NJ EMP[[2]](#endnote-2) (doc. available Jan 2020) gives the overall NJ consumption as of 2018.
3. Carbon reduction scenarios are not always independent. For example, using rooftop, community or other solar to generate electricity means that the Energy Aggregation scenario will not reduce the amount of carbon already reduced by rooftop or community solar electricity. Energy efficiency measures reduce electric, heating, or fuel demands and thus corresponding carbon emissions, so switching to clean electricity does not offset carbon emissions for electricity, heating, or fuel that is no longer needed.
4. Calculations are stored at http://climate.smiller.org/energy-plan/Middletown-2020-Energy-Plan/ClimateAction-7-5-20.xls
1. Figure 2 of 2019 NJ EMP indicates 97 MMTCO2e emitted in 2018 for all of NJ.  The EMP  indicates that 24.1 MMTCO2e is the NJ 2050 goal per Global Warming Response Act, aka 80x50.   The Figure 1 Middletown goal  is based on Middletown's pro rata share based on Middletown population versus New Jersey state wide, linearly declining from 2020 to 2050 [↑](#endnote-ref-1)
2. <https://www.nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf> (page 22) [↑](#endnote-ref-2)