50x30 Building Electrification (BE) Team draft V6 2/3/2022

2022 Building Electrification Objectives

**Background:** Per the New Jersey Board of Public Utilities (BPU) 2019 Integrated Energy Plan supported by Rocky Mountain Institute (RMI) the transition to transportation and building electrification will use 40% less energy by 2050.[[1]](#footnote-1) As documented in the BPU’s 2019 Energy Master Plan (EMP) and the New Jersey Department of Environmental Protection (DEP) 80 x 50 Plan electrifying transportation and buildings powered by clean renewable electricity will achieve the State’s goal to achieve an 80% reduction in 2006 GreenHouse Gas (GHG) emissions by 2050 powered by 100% clean electricity (defined as carbon neutral).[[2]](#footnote-2) As documented by RMI the achievement of these goals are cost effective with the benefits exceeding the cost by 2 to 3 times.[[3]](#footnote-3) Governor Murphy in his Executive Order (EO) 274 established the interim policy of the State to reduce greenhouse gas emissions to 50 percent below 2006 levels by the year 2030 implementing the strategies in the 2019 EMP and the 2020 80 x 50 Report.

Gov. Murphy joined the United States Climate Alliance, a bipartisan coalition of 24 governors (as of 2/3/2022) committed to reducing GHG emissions consistent with the goals of the Paris Agreement. This commits NJ to reduce collective net GHG emissions at least 26-28 percent by 2025 and 50-52 percent by 2030, both below 2005 levels, and collectively achieving overall net-zero GHG emissions as soon as practicable, and no later than 2050[[4]](#footnote-4).

While the State has set goals and timeframes to advance 100% clean renewable electricity and to electrify transportation with Electric Vehicles (EV), the state has not set firm goals and timeframes for building electrification[[5]](#footnote-5) [[6]](#footnote-6).

**Goal:** The Building Electrification (BE) Team will work with all willing partners to establish and implement firm timeframes and goals for building electrification as part of the Statewide strategies to meet the State’s 50% reduction in 2006 GHG emissions by 2030.

**Objectives:** The BE Team will focus on accelerating electrification and efficiency in Residential and Commercial buildings and appliances in New Jersey.[[7]](#footnote-7) We will be guided by actions stated in the 2019 New Jersey EMP, Strategy 4, as well as relevant points of the Global Warming Response Act (GWRA) 80x50 Report.

We acknowledge the overall NJ goal is a 50% reduction from 2006 NJ levels of GHG emissions in all sectors by 2030 (thus 50x30, as per Governor Murphy’s Executive Order 274) and a reduction to net zero GHG emissions in NJ by 2050, and will work to help meet any specific goals for the building sector when they are set. Since emissions from building heating and appliances account for about 25% of NJ GHG emissions, this is a very important area to address immediately.

This will involve an accelerated effort to deploy electric high efficiency heat pumps[[8]](#footnote-8) driven by increasingly cleaner and renewable electricity for space heating and other appliances in new and existing buildings. We first will seek to adopt an annual target for heat pump installations to meet the 50x30 goal. We will pursue new and amended laws and regulations to drive increasing deployment of electric heat pumps and other low GHG-emitting electric appliances, improved electric appliance efficiency and building codes, funding for building energy conservation measures and other incentives, and, as soon as possible, the elimination of new gas hookups. This effort will also involve outreach, education, training and marketing campaigns for consumers and HVAC personnel to drive consumer choice toward electrification.

Our exact focus will be driven by our assessment of those areas that we can best impact, given what the NJ Government is or is not currently doing, the skills and expertise of team members, and other skills that are missing but can potentially be filled by Empower NJ or other entities such as Rutgers or government agencies. We will work to be complementary and synergistic with the State’s programs as they evolve. Following are our high-level objectives:

· **BE Objective 1.** Work with all willing partnersto develop annual targets for heat pump installations needed to meet the Governor’s NJ 50x30 goal and obtain a commitment by the State to meet the target.

· **BE Objective 2.** Start the transition for new construction, gut rehabs*,* and existing building retrofits to be net zero carbon[[9]](#footnote-9). Assess existing building codes and any proposed or existing legislation or regulations and identify gaps. Propose changes to building codes to address shortfalls and drive air- or geo-sourced heat pump[[10]](#footnote-10) installations (paired with rooftop solar, where applicable, and enhanced efficiency measures) in new construction or building remodeling. Disallow gas hookups in new construction. Have proposed changes adopted by the state.

· **BE Objective 3.** Start the transition to electrify existing oil, propane and natural gas-fueled buildings, and switch to efficient heat pumps, as well as convert buildings heated by resistance electricity (e.g., electric baseboard heating) to heat pumps for a more sustainable electrical system. The switch to efficient building electrification includes heating systems and appliances (such as heat pump water heaters, clothes dryers, or induction cooktops). Work with BPU and the electric utilities to enhance the existing Clean Energy Program heat pump and appliance incentives for such conversions.

· **BE Objective 4.** Assess and improve education, marketing and incentives for energy efficiency audits and improvement programs now conducted by the NJ Clean Energy Program and utilities. Identify opportunities to improve effectiveness and lobby to have them adopted.

1. <https://www.nj.gov/emp/pdf/New_Jersey_2019_IEP_Technical_Appendix.pdf> [↑](#footnote-ref-1)
2. <https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf> and <https://www.nj.gov/dep/climatechange/docs/nj-gwra-80x50-report-2020.pdf> [↑](#footnote-ref-2)
3. <https://www.nj.gov/emp/pdf/New_Jersey_2019_IEP_Technical_Appendix.pdf> and <https://www.nj.gov/emp/pdf/NJ%20IEP%20Public%20Webinar%20Nov1%20Final.pdf> [↑](#footnote-ref-3)
4. <http://www.usclimatealliance.org/alliance-principles> [↑](#footnote-ref-4)
5. [2020\_NJBPU\_EMP.pdf](https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf), pages 159-160 [↑](#footnote-ref-5)
6. <https://www.nj.gov/dep/climatechange/docs/nj-gwra-80x50-report-2020.pdf> pg. 61of 201 [↑](#footnote-ref-6)
7. Commercial means commercial electric accounts including but not limited to businesses, offices, institutions, government buildings but not industrial electric accounts. [↑](#footnote-ref-7)
8. HVAC vendors can recommend a "cold climate" heat pump as required by the local climate or efficiency requirements. HVAC vendors can recommend a standard heat pump to 1. replace an existing A/C condenser where experience and technical analysis determines that a hybrid system provides a high GHG reduction (90% objective) when reusing other existing HVAC components, or 2. install a ground source heat pump (“cold climate” heat pump typically not required) for highest efficiency. [↑](#footnote-ref-8)
9. Net Zero Carbon buildings can be new, or remodeled, and have implemented efficiency and design strategies to ensure they can produce on-site, or procure, enough carbon-free renewable energy to meet annual energy consumption of building operations. In addition, the BE team will consider new net zero carbon standards, being adopted world-wide, which also evaluate the net embodied carbon from building construction and life-cycle reuse of the building components. [↑](#footnote-ref-9)
10. The EPA Energy Star “Cold Climate” heat pump classification will be available in 2023. Until then, use heat pumps tested at 5 degrees, and identified on “NEEP’s Cold Climate Air Source Heat Pump List” [https://ashp.neep.org/#!/](https://ashp.neep.org/%23!/) Other heat pump classifications are described in footnote 8, above. [↑](#footnote-ref-10)