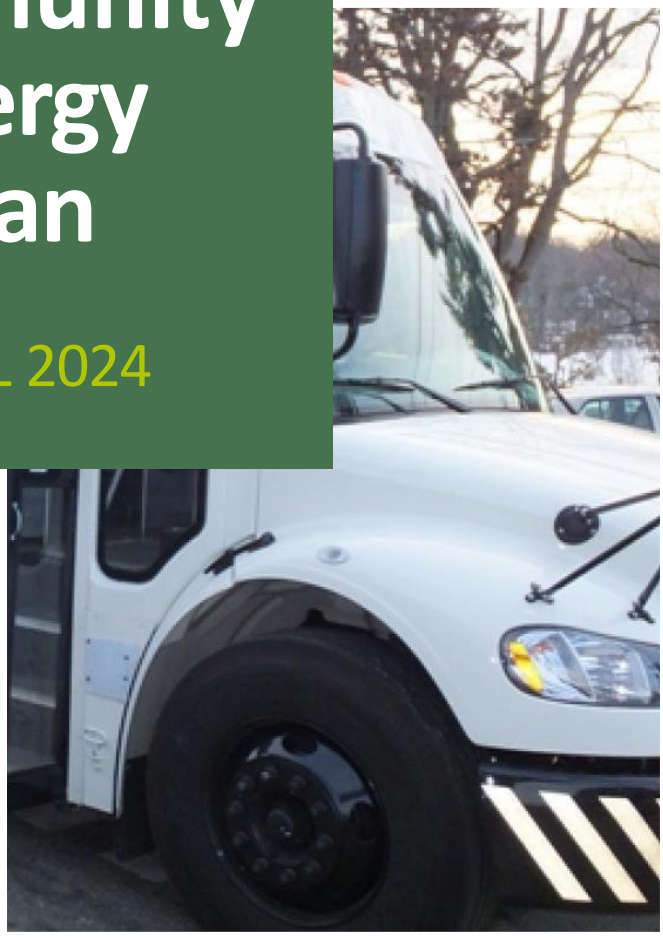
Township
of
Maplewood
New Jersey

Community Energy Plan

APRIL 2024



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I. EXECUTIVE SUMMARY

The Maplewood Community Energy Plan is an implementation and action plan to generate significant reductions in greenhouse gas emissions for both municipal operations and the wider community while providing numerous local co-benefits, such as long-run cost savings, improved air quality, and creation of local jobs. The purpose of the Community Energy Plan is to identify initiatives at the Township level that will address local opportunities and changes that are required to support the New Jersey Energy Master Plan's strategies to reach the goal of 100% clean energy by 2050.

Photo credit:
Mason Levinson masonlev.com

Planning Process

Starting in July 2022, the Sustainable Maplewood Committee reviewed the Sustainable Jersey **Guide for Sustainable Energy Communities** and **Community Energy Plan Workplan Template** and began meeting with municipal staff and community volunteers to determine how to prioritize and implement high-impact initiatives. Relevant community data was gathered, and the Rutgers Center for Green Building was contracted to provide data on Maplewood's building stock and solar opportunities. The Sustainable Maplewood Committee presented an outline of the Maplewood Community Energy Plan at a public meeting of the Maplewood Township Committee on July 18, 2023, and a community meeting, with presentations from the Rutgers Center for Green Building, was held at the September 2023 meeting of the Hilton Neighborhood Association.

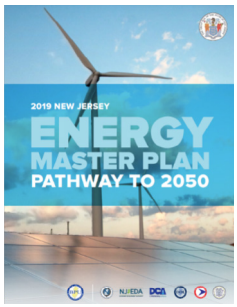
Community Overview

Approximately two-thirds of Maplewood's community-wide energy use is in the residential sector with most of the remaining coming from the commercial sector. The industrial sector is relatively small. The largest local energy consumption comes from heating buildings and vehicle travel, with electricity use a smaller contributor. Municipal energy use only accounts for a few percent of the total, but the Township plays an important role in setting an example for the rest of the community and therefore has an outsized role in the Community Energy Plan.

Implementation

Work on the Maplewood Community Energy Plan (Plan) brought together an effective Community Energy Plan Team with members drawn from the Maplewood Township Committee, senior Township staff, and community volunteers. The Community Energy Plan Team, reinforced with additional participants, will be responsible for moving the Plan forward. Most of the benefits expected from this Plan are yet to be realized and will depend on its successful implementation and the continued development of other initiatives as new opportunities develop, as additional goals are set, and as next phase plans take shape.

The Plan's success will depend on the continued support from the Township Committee in their policy and budgeting decisions and the continued cooperation and leadership of Township staff. The Community Energy Plan Team will need to meet regularly to monitor progress in fulfilling the initiatives and engage the community in the progress being made and challenges encountered.



Maplewood Township Initiatives

The Maplewood Township initiatives are organized by the strategies described in the *New Jersey Energy Master Plan: Pathway to 2050*.

NEW JERSEY ENERGY MASTER PLAN STRATEGIES

1: Reduce Energy Consumption and Emissions from the Transportation Sector

- 1 (A) Train First Responders on Electric Vehicles (EVs) and EV Charging Stations
- 1 (B) Train Non-Emergency Staff on EVs and EV Charging Stations
- 1 (C) Purchase Alternative Fuel Vehicles
- 1 (D) Improve Municipal Fleet Efficiency
- 1 (E) Encourage Non-Municipal Fleets to Improve Efficiency

2: Accelerate Deployment of Renewable Energy and Distributed Energy Resources

- 2 (A) Adopt Supportive Zoning and Permitting for Solar
- 2 (B) Install On-Site Municipal Renewable Generation
- 2 (C) Institute a Community-wide Solar Purchasing Program
- 2 (D) Support Participation in Community Solar

3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

- 3 (A) Upgrade Energy Efficiency in Municipal Facilities
- 3 (B) Residential Energy Efficiency Outreach Campaign
- 3 (C) Commercial Energy Efficiency Outreach Campaign

4: Reduce Energy Consumption and Emissions from the Building Sector

- 4 (A) Make New Energy Investments in Municipal Buildings Models of Future-Oriented Innovation

6: Support Community Energy Planning and Action with an Emphasis on Encouraging and Supporting Participation by the Low- and Moderate-Income Community

- 6 (A) Conduct Energy Efficiency Outreach to Low- and Moderate-Income Residents
- 6 (B) Support Low- and Moderate-Income Community Energy Efficiency Upgrades by Resolving Pre-existing Building Deficiencies

7: Expand the Clean Energy Innovation Economy

- 7 (A) Adopt Energy Storage Policies
- 7 (B) Expand Grid Capacity to Allow Replacement of Fossil-Fuel Energy

II. INTRODUCTION

The Township of Maplewood is committed to addressing climate change and reducing greenhouse gas (GHG) emissions. This Community Energy Plan (Plan) details the specific strategies Maplewood will pursue in the coming years to reduce GHG emissions from the local energy system. The Plan covers municipal operations such as the municipal vehicle fleet and buildings, as well as public policies and programs designed to encourage and support the community in reducing emissions.

During the creation of this plan, the Township provided several opportunities for public input, taking care to enable low- and moderate-income residents to participate. In-person and virtual public comment sessions were held at different times of day to accommodate different work schedules.

Starting in July 2022, the Sustainable Maplewood Committee--a group comprised of members of the Maplewood Environmental Advisory Committee, Green Team, Township Committee and staff-reviewed the Sustainable Jersey **Guide for Sustainable Energy Communities** and **Community Energy Plan Workplan Template** and began meeting with municipal staff to determine how to prioritize and implement high-impact initiatives. Relevant community data was gathered from the **Sustainable Jersey Data Center**.

On April 23, 2023, the Maplewood Township Committee approved a resolution to engage the Rutgers Center for Green Building to provide data on Maplewood's building stock and solar opportunities. The Sustainable Maplewood Committee presented an outline of the Maplewood Community Energy Plan at a public meeting of the Maplewood Township Committee on July 18, 2023.

A community meeting, with presentations from the Rutgers Center for Green Building, was held on September 21, 2023, at the monthly meeting of the Hilton Neighborhood Association. The final Community Energy Plan was adopted by a resolution of the Maplewood Township Committee in April 2024.

Co-Benefits of Sustainable Energy

RESILIENCY
- More dependable electric grid
- Decreased reliance on imported energy

SOCIAL EQUITY
- Better affordable transportation
- More affordable renewable energy

PUBLIC HEALTH
- Lower concentrations of ground-level outdoor air pollutants
- Removal of indoor air pollution sources

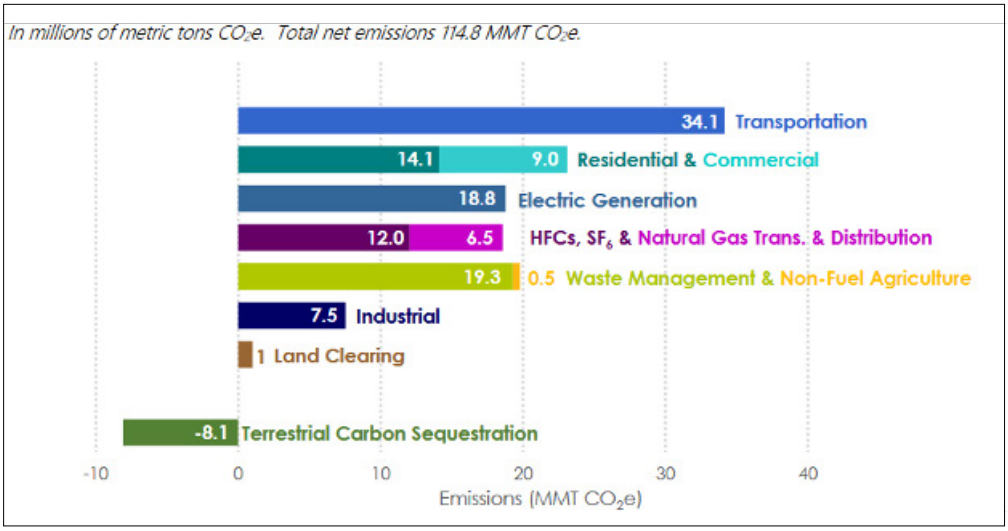
Maplewood's Community Energy Plan establishes how the municipality will promote the transition to sustainable energy over the next several years. Initiatives were selected based on demonstrated effectiveness, unique local opportunities, and co-benefits for the community as a whole, such as improved local air quality, energy savings for residents, and workforce development.

Climate change is one of the greatest threats to our future prosperity in Maplewood, and globally. New Jersey is both a significant source of greenhouse gas emissions (GHG) and a state particularly vulnerable to climate change. Increasing heat waves, intense storms, and sea-level rise caused by climate change will dramatically alter our coastal state for many years to come (New Jersey Department of Environmental Protection (DEP), Scientific Report on Climate Change).

According to the DEP's **NJ Greenhouse Gas Emissions Inventory Report**, New Jersey adds almost 115 million metric tons of carbon dioxide equivalent (CO2e—20-year global warming potential of emissions) to the atmosphere annually. Three-quarters of these emissions come from energy use: transportation, residential and commercial buildings, electricity generation and importation, fuel-based industrial, and natural gas transmission and distribution. New Jersey can mitigate the local and global impacts of climate change with a rapid transition from the current GHG-intensive energy system to one that optimizes energy use and produces energy with minimal GHG emissions.

Chart 1: Breakdown of New Jersey Greenhouse Gas Emissions

Source: https://dep.nj.gov/wp-content/uploads/ghg/2022-ghg-inventory-mcu_final.pdf



Recognizing New Jersey's role in climate change mitigation, the State of New Jersey has established a goal of 100% clean energy in the state by 2050. ***The New Jersey Energy Master Plan: Pathway to 2050*** outlines the state's strategies for achieving that goal while also addressing issues of social and economic inequity.

To promote action at the local level in support of the state's goals, the New Jersey Board of Public Utilities (NJBPU) launched the Community Energy Plan Grant Program, offering support and funding for municipalities to develop a Community Energy Plan. Maplewood Township received a $10,000 Community Energy Plan Grant and completed this Plan as a participant of the grant program. The Maplewood Community Energy Plan identifies 17 areas where local initiatives are needed to implement and support the various New Jersey Energy Master Plan strategies and goals.

Sustainable Maplewood Committee

Left to right: Assistant Township Engineer David Barry, Township Engineer Paul Kittner, Mayor Nancy Adams, Health Officer Candice Davenport, Environmental Advisory Committee Chair Bob McCoy, Director of Community Development Annette DePalma and Township Committee Member Vic De Luca

Photo credit: Tracey Woods

III. COMMUNITY OVERVIEW

Maplewood Township is a four square mile inner suburban community located in Essex County, New Jersey. According to the U.S. Census estimates as of July 2023, Maplewood had 25,220 residents in 8,400 households, with a racial composition of is 54% White, 33% Black or African American, 3% Asian or Pacific Islander, and 5% two or more races, and 8% of the population is Hispanic/Latino. Maplewood's median household income is $166,000, with 3.4% of households below the U.S. poverty threshold.

Maplewood's Municipal Revitalization Index (MRI) Distress score, a measure of a municipality's economic conditions, is 17 out of a possible 100, which ranks 434th least distressed of New Jersey's 564 municipalities. In other words, Maplewood's overall economic conditions are better than three-fourths of New Jersey municipalities (https://www.nj.gov/dca/home/pdf/2023_MRI_Scores_and_Rankings.xlsx).

Table 1. July 2023 Population Characteristics of Maplewood, New Jersey

Source: U.S. Census & NJ Department of Community Affairs (DCA)*MRI = Municipal Revitalization Index (MRI)

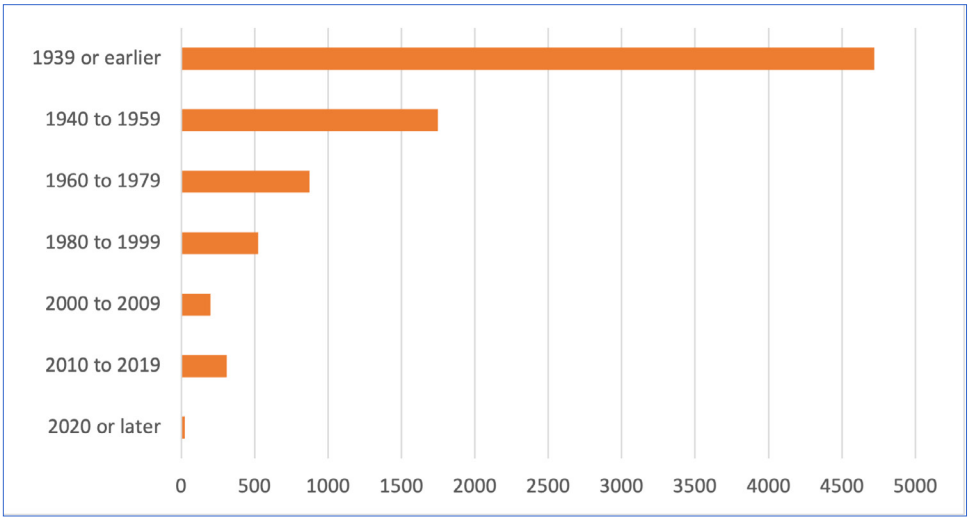
Population	Households	Median Household Income	Percent of Population in Poverty	NJ DCA 2020 MRI Distress Score*	NJ DCA MRI Rank*
25,220	8,400	$166,000	3.4%	17	434

Residential Structures

Maplewood has been substantially built out. According to Census estimates, 87% of structures were built before 1960, including 56% which were built before 1940. Only 6% of structures were built after 2020.

Chart 2: Year Maplewood Structures Were Built

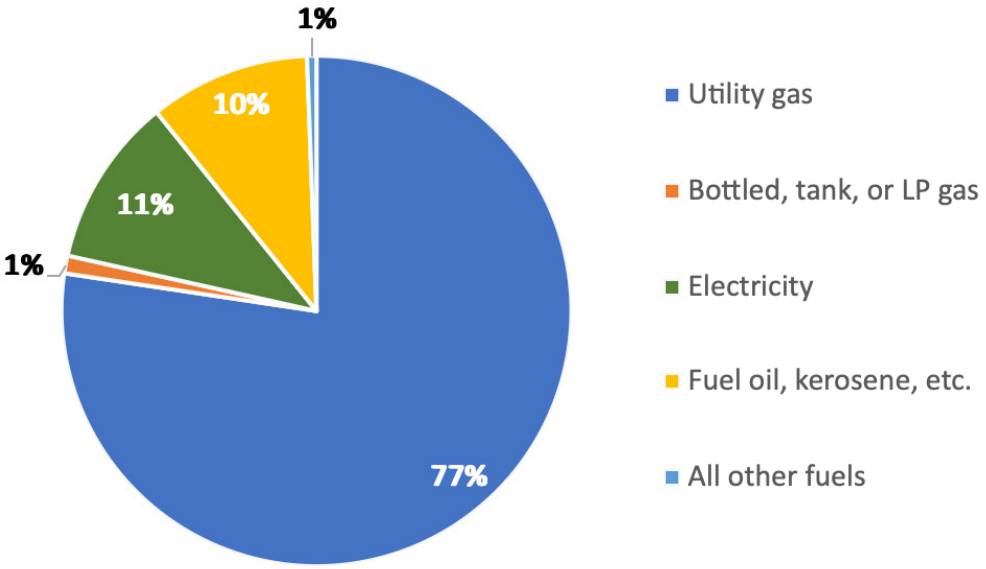
Source: U.S. Census American Community Survey (ACS) 5-year data 2022



The Census estimates that natural gas is the primary heating fuel for 77% of households, with electricity making up 11% and fuel oil 10%.

Chart 3: Primary Heating Fuels of Occupied Housing Units

Source: U.S. Census ACS 5-year data 2022

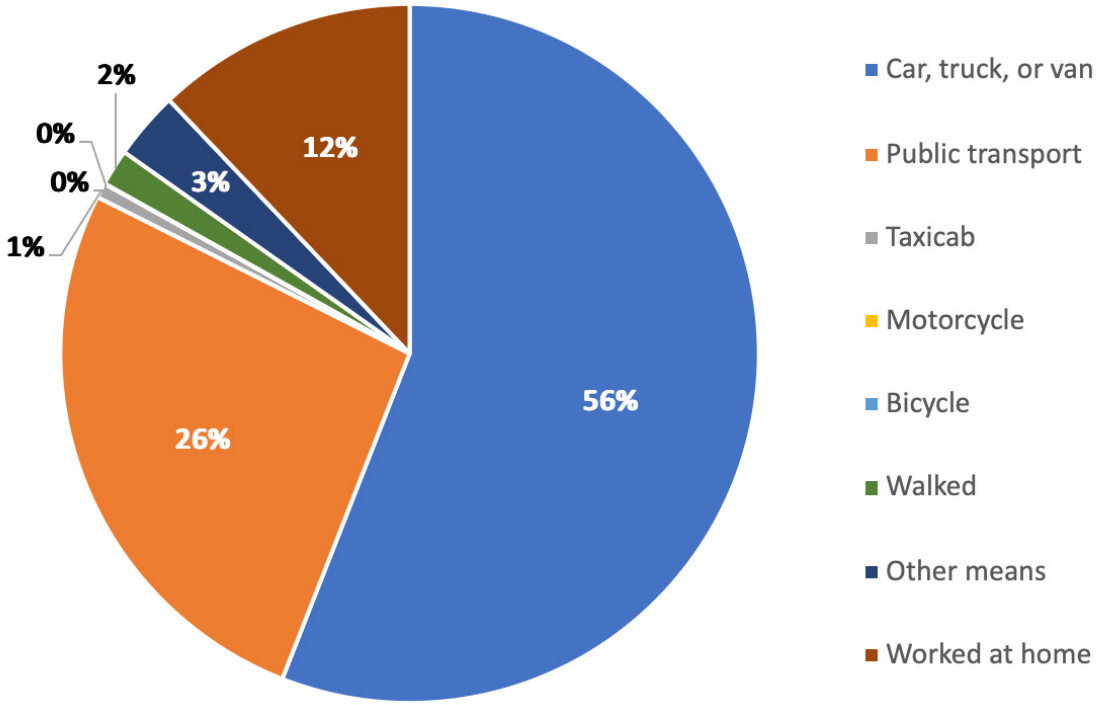


Transportation to Work

In the years before COVID-19, a slight majority of Maplewood residents traveled to work by car, truck, or van, and about one quarter by public transport and an eighth worked at home, by Census estimates.

Chart 4: Means of Transportation to Work (2020)

Source: U.S. Census ACS 5-year data 2022



Electricity and Natural Gas Usage Data

Most electricity and natural gas use is currently associated with buildings. Utility companies generally organize electricity and natural gas use into four sectors – residential, commercial, industrial, and street lighting. The commercial sector includes nonprofits and houses of worship, government entities such as schools and municipal buildings, and businesses.

As illustrated in Charts 5 and 6, the residential sector accounts for the majority of electricity and natural gas use in Maplewood. In other words, residential buildings present the greatest opportunity for energy use reductions.

Chart 5: Amount of Electricity Purchased in Maplewood by Sector (kWh)

Source: Sustainable Jersey. Aggregated Community-Scale Utility Energy Data

Note: Electricity values represent purchased electricity and do not include customer-generated electricity, such as from rooftop solar.

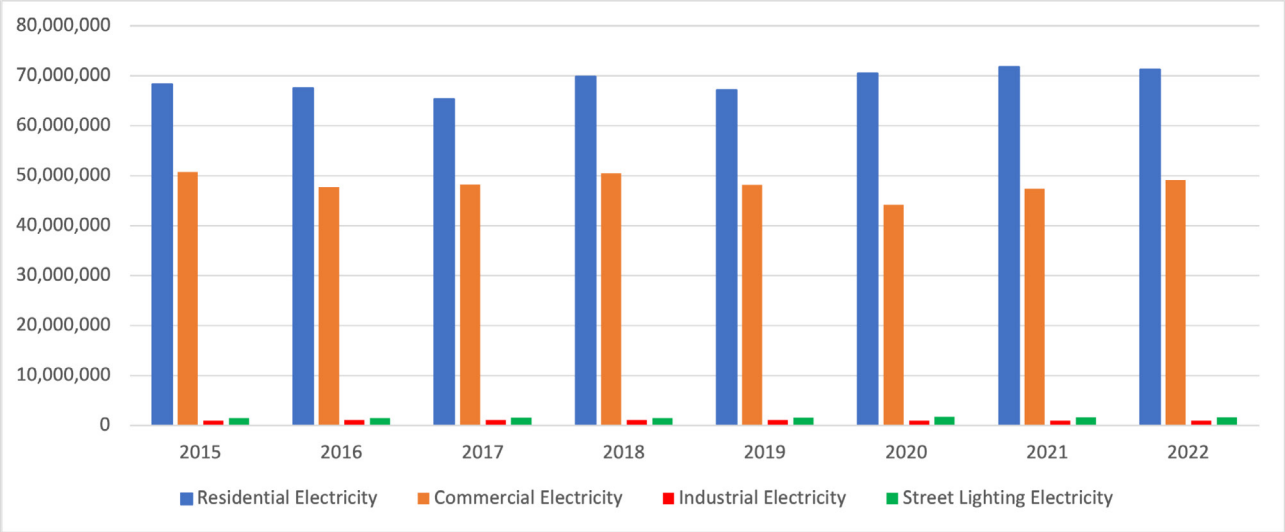
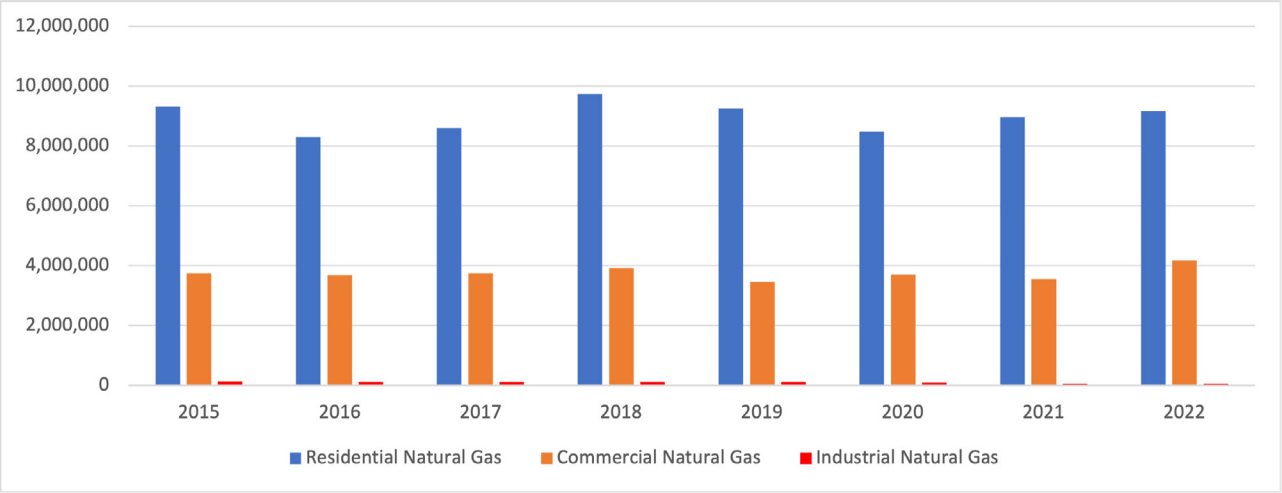


Chart 6: Amount of Natural Gas Purchased in Maplewood by Sector (Therms)

Source: Sustainable Jersey. Aggregated Community-Scale Utility Energy Data



Community GHG Emissions from Energy Use

The total estimated community-wide greenhouse gas (GHG) emissions from electricity, natural gas/ heating fuel (2022 data), and modeled transportation energy use (2019 data) in Maplewood was about **180,000 metric tons CO2e**. About 80% of emissions came from two broad sources: on-road vehicles (passenger cars, trucks, and buses) and residential use (natural gas, electricity, and heating oil). For the residential sector almost half of the emissions came from heating fuel use, followed by passenger vehicles, and electricity. Municipal emissions accounted for about 2% of the total.

Chart 7: Overall GHG Emissions of Maplewood by Sector and Energy Type

Source: Sustainable Jersey. Community-Scale Greenhouse Gas (GHG) Emissions Data

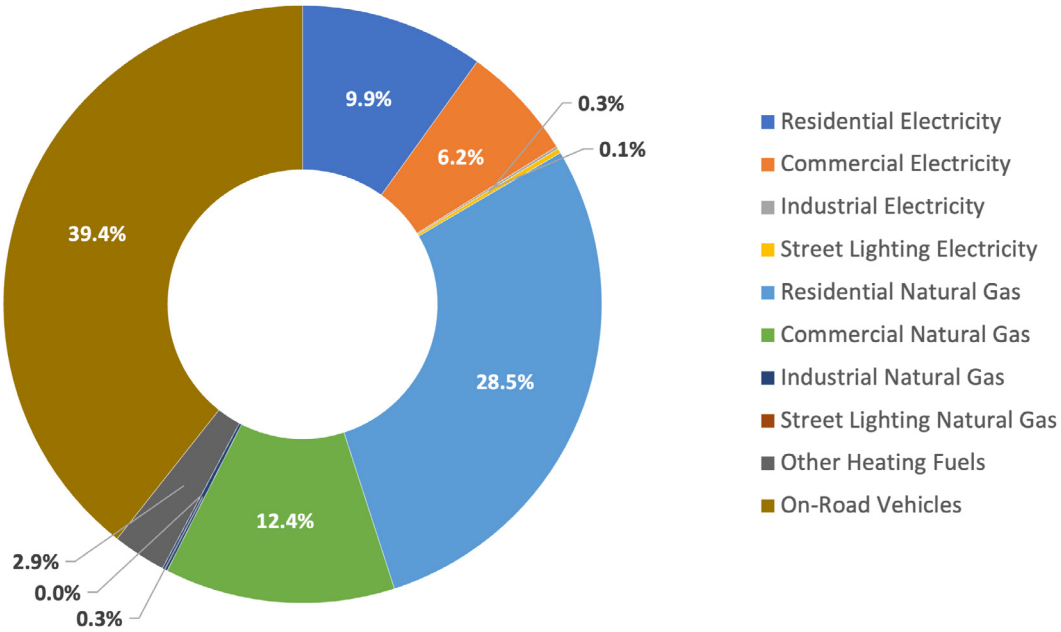
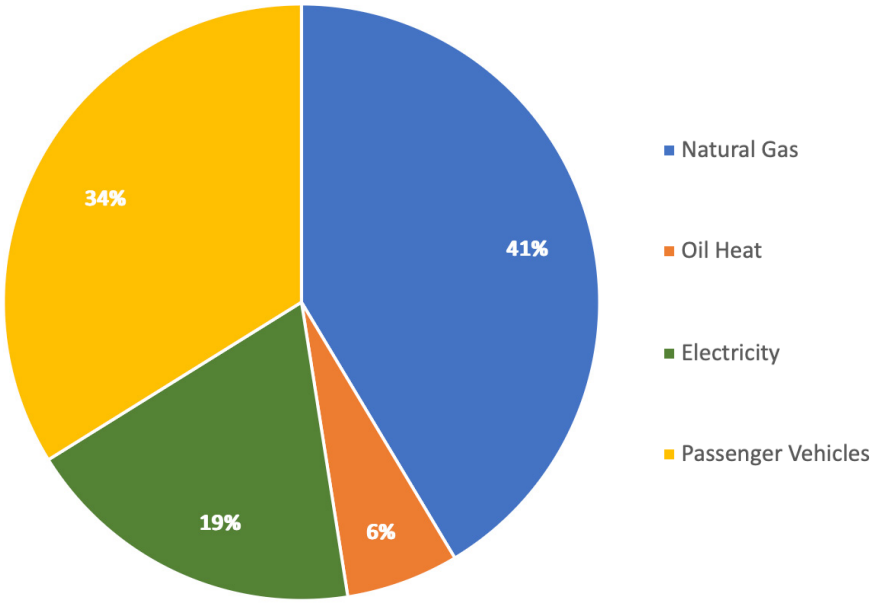


Chart 8: Shares of Emissions from Household Energy and Passenger Vehicles

Source: Sustainable Jersey--Vehicle Miles Traveled On Road Vehicle GHG Emissions (2019) and PSE&G reported data (2022)



IV. WORK PLAN

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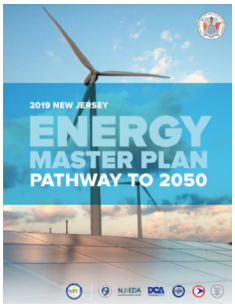

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- 4 (A) Make New Energy Investments in Municipal Buildings Models of Future-Oriented Innovation

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7: Expand the Clean Energy Innovation Economy

- 7 (A) Adopt Energy Storage Policies
- 7 (B) Expand Grid Capacity to Allow Replacement of Fossil-Fuel Energy

NEW JERSEY ENERGY MASTER PLAN STRATEGY 1:
Reduce Energy Consumption and Emissions from the Transportation Sector

In 2020, transportation accounted for as much as 30% of New Jersey's total greenhouse gas emissions (CO2e—20-year global warming potential), and almost 40% of energy emissions.73% of transportation emissions were due to on-road gasoline consumption, 19% were due to on-road diesel, 3% each were due to aviation and marine transportation, and 0.4% were from diesel rail traffic (DEP, NJ Greenhouse Gas Emissions Inventory Report).

Fossil fuel-powered transportation also produces regional air pollution that significantly harms the health and quality of life of residents. Maplewood has been and will continue to electrify municipal fleet vehicles and promote transportation electrification in the community to lessen the negative impact of our transportation system on our community and the world.

The Electrification of Maplewood's Municipal Fleet

Maplewood Police Department had the first pursuit-class electric vehicle in New Jersey. This is a still from a January 2022 Sustainable Jersey webinar. In this presentation, then Police Chief Jim DeVaul, talked about the popularity of the EV saying, "If I want to see the car, I have to request for it to be brought to the station, everybody wants to drive this car."
Photo credit: Tracey Woods

Maplewood Jitney Service

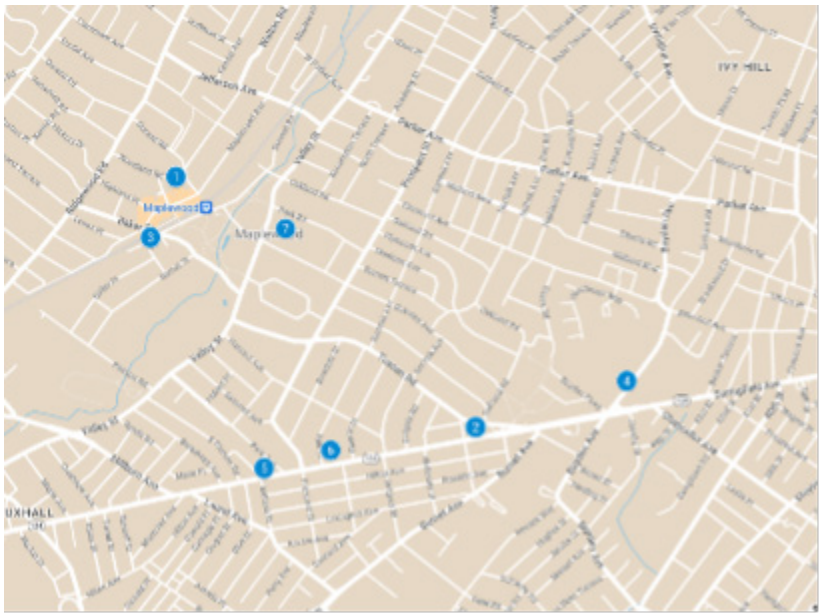
Since 1997, Maplewood has offered a jitney service to allow commuters access to the Maplewood Train station. Before the Pandemic, the jitney service ridership was more than 200 residents a day, reducing emissions from vehicles, freeing up downtown parking spaces, and transporting residents who lack second vehicles to and from the train station. Additionally, Maplewood's current jitney buses run on Biodiesel fuel, purchased locally at an oil dealership committed to alternative fuel production.

Map 1: Maplewood Jitney Service: Four Routes, Each with Multiple Stops

Source: Google Maps and https://www.maplewoodnj.gov/government/public-works/jitney-bus-services

Map 2: Public EV Charging Infrastructure In Maplewood January 2024

Source: Google Maps and Maplewood Engineering



Existing Public EV charging equipment in Maplewood:

1. Woodland Parking Lot
2. Maplewood Library—Hilton Branch
3. Dunnell Road-SW of Baker
4. Maplewood Pool
5. Indiana Street Parking Lot
6. Town Hall Parking Lot

Maplewood Township Initiative 1 (A):
Train First Responders on EVs and EV Charging Stations

Description

Require training for local first responders on electric vehicles (EVs) and associated infrastructure, furthering public confidence and maintaining emergency preparedness.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Fire Chief	Ongoing	Medium	One training event, every three years	Police operating budget

Department(s) Involved

- South Essex Fire Department

Obstacles/Barriers

- None

Community Notes

No first responder departments have undergone training specific to electric vehicles and EV charging equipment. As of 2020 (the most recently available data), there were 208 passenger electric vehicles in Maplewood; the number of EVs in town has likely increased considerably since then (Sustainable Jersey, Electric Vehicle Ownership Data). There are also seven public EV charging stations in the township (See Map 2).

Next Step(s)

1. Fire Chief works with training coordinator to incorporate in the Department's regular training schedule the National Fire Protection Association online electric vehicle training for emergency responders.

Maplewood Township Initiative 1 (B):
Train Non-Emergency Staff on EVs and EV Charging Stations

Description

Initiate electric vehicle cross-training for non-emergency staff such as code officials, automotive technicians, and electricians.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Code Enforcement Officer	Ongoing	Medium	One training event, every three years	N/A

Department(s) Involved

- Department of Community Development: Construction Division
- Department of Community Development: Property Maintenance Division

Obstacles/Barriers

- None

Measures of Success

The Department of Community Development's Construction and Code Enforcement Divisions will remove obstacles to installing EV charging equipment by posting the permit application process and inspection process for EV Charging Infrastructure on municipal website. Additionally, code officials will have information available to guide residents and commercial businesses to encourage entities making electrical meter and panel upgrades to plan for future EV infrastructure needs.

Next Step(s)

1. The Department of Community Development uses the guidance available in Sustainable Jersey's Action, Make Your Town EV Friendly, to create and post a permitting guide for EV Charging Equipment on the Municipal website.

Maplewood Township Electric Vehicle Charger Ribbon Cutting
Photo credit: Tracey Woods

Maplewood Township Initiative 1 (C): Purchase Alternative Fuel Vehicles

Description

Replace existing municipal fleet vehicles with battery electric, or other sustainable alternative fuel vehicles, using fleet analysis to inform purchases.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Business Administrator	Ongoing	Medium	Until all cost-effective vehicles in the fleet have been electrified	Municipal operating budget, BPU Clean Fleet funding, and other grant funding

Department(s) Involved

- Administration
- Police
- Public Works

Obstacles/Barriers

- Cost and supply chain issues
- Lack of options on visiting purchasing co-ops and State Contract

Community Notes

The Township of Maplewood is in the process of acquiring electric vehicles when replacements for existing vehicles are needed and EV options are available. As of January 2024, the Township has purchased two electric police cars, two electric pickup trucks, and one plug-in hybrid passenger vehicle. It has four electric police cars and one mid-sized electric bus on order with three additional electric buses pending approval of a grant.

Measures of Success

- When it is cost and operationally effective, replacement vehicles in the municipal fleet will be electric.

Next Step(s)

1. Use the Atlas Fleet tool to assess financial viability and environmental impact of each vehicle slated for replacement (https://atlaspolicy.com/rand/fleet-procurement-analysis-tool/).
2. Advise department heads if requested vehicles are suitable for electrification and note options available on eligible co-ops and the state contract.

Maplewood Township Initiative 1 (D): Improve Municipal Fleet Efficiencies

Description

Replace existing municipal fleet vehicles with battery electric, or other sustainable alternative fuel vehicles, using fleet analysis to inform purchases.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Department of Public Works Fleet Manager	January 2024	Medium	3 months for procurement plan, then 3 years to implement plan	N/A

Department(s) Involved

- Administration
- Departments operating fleet vehicles

Obstacles/Barriers

- Some vehicle users may be concerned that EVs don't have enough range for their needs.

Community Notes

Maplewood's new fueling station includes fuel usage and mileage tracking software. The largest GHG emissions from fleet vehicles come from the Police Department.

Measures of Success

- Annual fleet inventory process established
- Prior to procurement, Department of Public Works (DPW) Fleet Manager is using fleet analysis to show that incoming EVs have sufficient range for their intended uses
- 20% reduction in fleet emissions within 4-year span

Next Step(s)

1. DPW Fleet Manager establishes process for annual fleet inventory, including tracking system for fuel usage and mileage of every vehicle in the municipal fleet.
2. DPW Fleet Manager produces annual emissions and fuel report benchmarking progress toward the 2027 goal of 20% reduction in fleet emissions using 2023 data as the baseline.

Table 2 Maplewood Municipal Vehicle Fuel Used in 2022 (Gallons of Fuel Used)

Maplewood Department	Gallons of Fuel Used			Total Gallons of Fuel Used by Department
	Gasoline	Diesel	Biodiesel	
Police	23,418			23,418
DPW	6,171	10,904		17,075
Fire	3,483	6,046		9,529
Recreation	738			738
Engineering	582			582
Building	274			274
Clerks	90			90
Finance	48			48
Health	26			26
Jitney			9,233	9,233
Total Gallons	34,830	16,950	9,233	61,013

Chart 9: Maplewood Municipal Vehicle Fuel Use

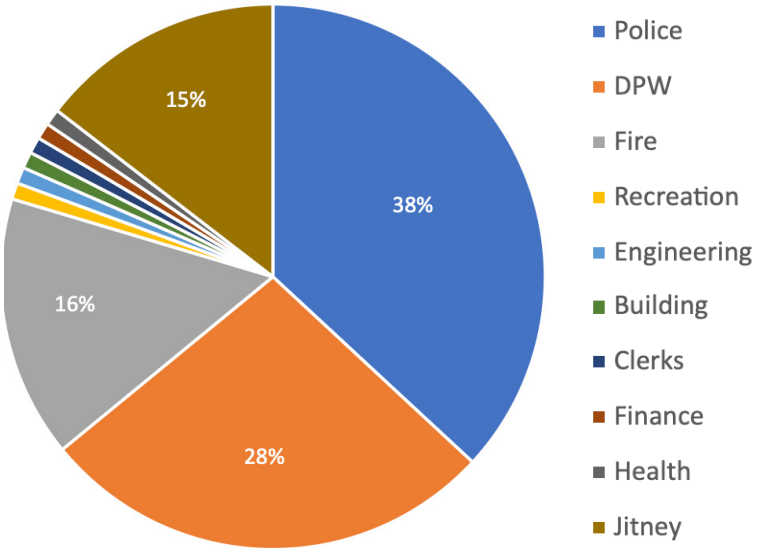
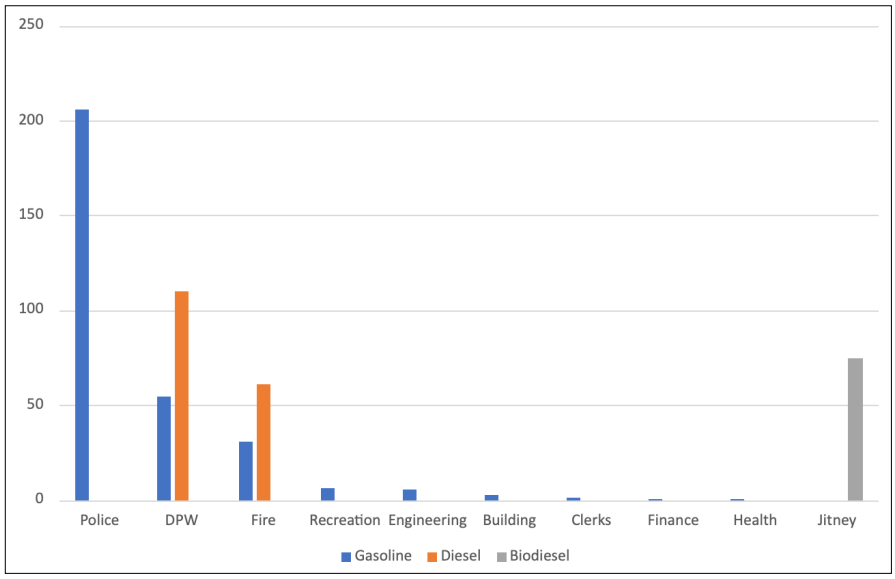


Chart 10: 2022 Maplewood Municipal Vehicle GHG Emissions by Department and Fuel

Source: Table 2, Charts 9 & 10: Maplewood Department of Public Works fuel dispensing records



Maplewood Township Initiative 1 (E):
Encourage Non-Municipal Fleets to Improve Efficiency

Description

Generate outreach to the residential and commercial communities on the environmental benefits and cost savings that can be achieved by choosing low emissions vehicles, and especially EVs at time of replacement.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Community Energy Plan Team	Fall 2024	Medium	6 month outreach campaign	N/A

Department(s) Involved

- Administration
- Springfield Avenue Partnership /Rotary Club/ Maplewood Village Alliance

Obstacles/Barriers

- Business fleet managers may not be aware of EV options for fleet vehicles
- EV charging may be an obstacle for adding EVs to fleets, particularly those that park in public parking lots.

Measures of Success

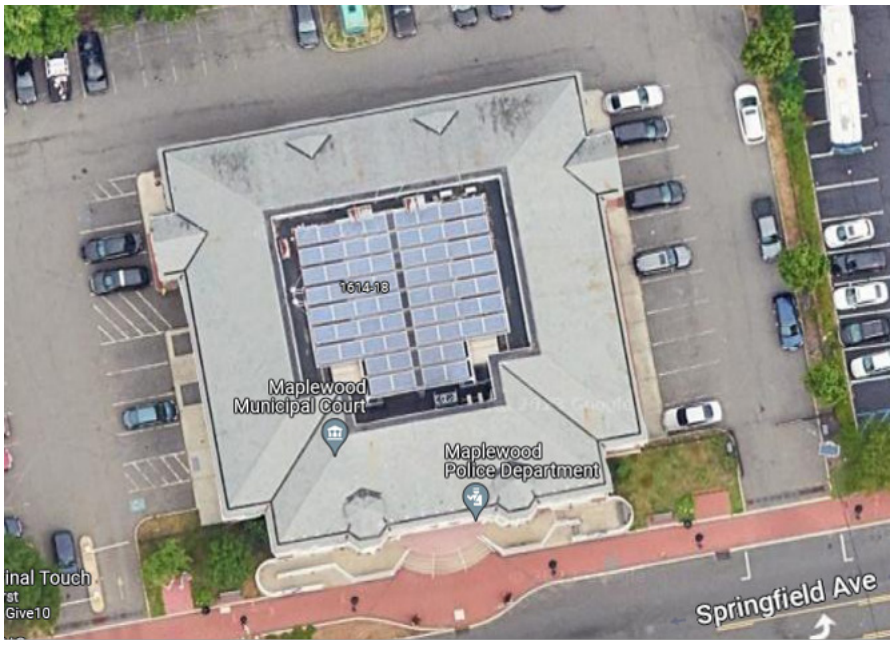
Outreach materials listing incentives for commercial EVs and purchasing options are circulated to fleet owners in the township.

Next Step(s)

1. Creation of outreach flier/webpage listing resources for municipal fleet owners.
2. Outreach materials are circulated to fleet owners.

NEW JERSEY ENERGY MASTER PLAN STRATEGY 2:
Accelerate Deployment of Renewable Energy and Distributed Energy Resources

Expanding renewable energy generation is necessary to eliminate greenhouse gas emissions from our energy system. Maplewood's most readily available renewable resource is sunlight, which more utility customers can now access thanks to declining prices and new systems like community solar. Maplewood can continue to refine local policies regarding solar and other renewable resources to promote local growth of renewable generation capacity.



Solar installation on Maplewood Police/Court building
Photo credit: Google Maps

Maplewood Township Initiative 2 (A):
Adopt Supportive Zoning and Permitting for Solar

Description

Maintain supportive zoning and building code regulations

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Township Committee	August 2023	High	2 years	N/A

Department(s) Involved

- Community Development: Code Enforcement Division
- Environmental Advisory Committee: Planning Board
- Community Energy Plan Team

Obstacles/Barriers

- Healthy and abundant tree canopy in some sections of Maplewood restricts the effectiveness of solar installations for many residences.

Community Notes

Maplewood Code Articles 271-70.17 - 271-70.19 allow solar installations in all zones when they are otherwise consistent with zoning and building code regulations for setbacks, height, and historic districts. Tree removal to facilitate solar installation is only permitted consistent with the General Code provisions for tree removal.

Measures of Success

Regulations supportive of solar installations are further enshrined in policy and energy planning.

Next Step(s)

1. Implement 2023 Maplewood Master Plan recommendation to prepare a Green Building element of the Master Plan.
2. Support and implement the Maplewood Community Energy Plan and its further refinement.
3. Investigate ways to maintain and enhance overall tree canopy consistent with minimizing shade on potential solar installation sites.

Maplewood Township Initiative 2 (B):
Install On-Site Municipal Renewable Generation

Description

Host a solar, wind, or geothermal project on municipal property to generate renewable energy for municipal facilities. Such projects can be leased from a developer or purchased and owned outright.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Library Board	Ongoing	High	2 years	State of New Jersey; Township of Maplewood; Maplewood Memorial Library Foundation

Department(s) Involved

- Library
- Public Works
- Finance & Taxes
- Engineering

Obstacles/Barriers

- PJM Interconnection and PSE&G interconnection delays
- South Orange Maplewood School District is independent of direct municipal control and does not consider solar a priority

Community Notes

Maplewood has an existing 20 kW on-site solar system on the roof of the Police/Court building, installed in 2008. A second municipal system is included in the design for the roof of the Maplewood Memorial Library, which is under construction and expected to be completed in September 2024. The Library solar roof is projected to provide 60% of the building's total energy use. Both systems are and will be owned by the Township.

Municipal On-site Solar Installations		
Address	**Interconnection Date**	**Total System Size (kW)**
1618 Springfield Avenue	2/11/2008	19.84
51 Baker Street	Anticipated fall 2024 or early 2025	TBD

Measures of Success

Solar installation on the Library is connected when the building reopens and supplies the anticipated amount of energy resulting in reduced CO2e from the previous library building.

Next Step(s)

1. The library project general contractor works with the solar installer to complete the design of the solar array.
2. Interconnection permits are secured.
3. Solar modules and supporting systems are installed and ready for interconnection.
4. System is interconnected and begins generating.

Maplewood Township Initiative 2 (C):
Institute a Community-wide Solar Purchasing Program

Description

Build on the success of earlier residential solar initiatives by partnering with solar installers or a solar marketplace to offer special pricing on solar installations to residents and/or businesses for a limited time. Solicit bids for a solar installer partner with Request for Proposals, then award the contract and advertise the offering to the community. Alternatively, partner with a competitive online solar marketplace to offer and promote a custom online webpage for residents and commercial property owners to receive quotes. Maplewood's collaboration with EnergySage is ongoing (**https://www.energysage.com/p/maplewood**).

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Township Committee	August 2023	High	2 years	N/A

Department(s) Involved

- Administration
- Engineering
- Community Energy Plan Team
- Mayor and Township Committee

Obstacles/Barriers

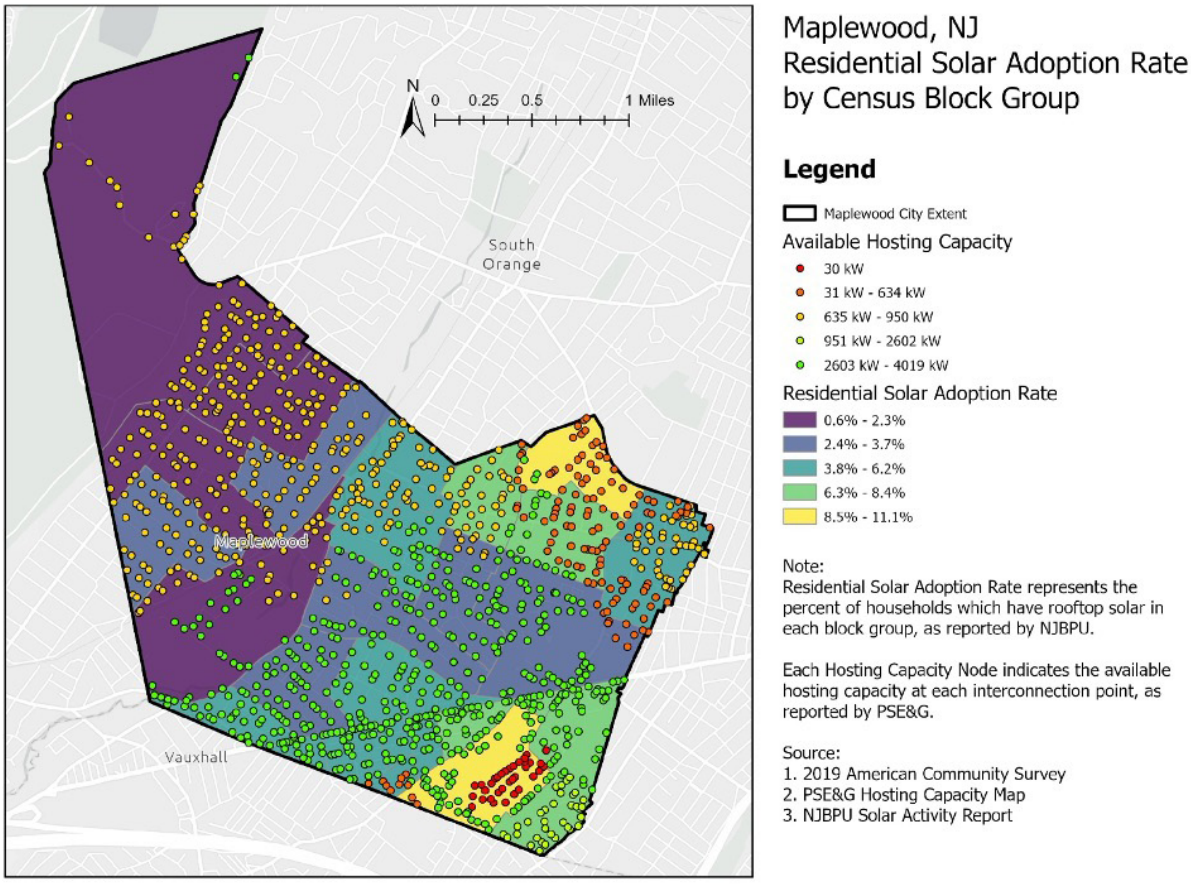
- Healthy and abundant tree canopy in some sections of Maplewood restricts the effectiveness of solar installations for many residences.
- Most commercial businesses lease their premises creating a disconnect between commercial electricity consumption and ownership of suitable solar sites.

Community Notes

As of December 2023, there were 430 solar installations in Maplewood registered with the NJ Clean Energy Program with a total Calculated System Size of 2715 kW. All these systems were residential except for one municipal installation and one commercial one. This represents about 6% of residential addresses with solar installations, generating an estimated 4% of residential electricity use and less than 1% of total annual residential energy used. The highest rates of solar adoption have been in block groups with relatively lower household income–some of these areas are approaching limits on interconnection capacity.

Map 3: Solar Potential by Property

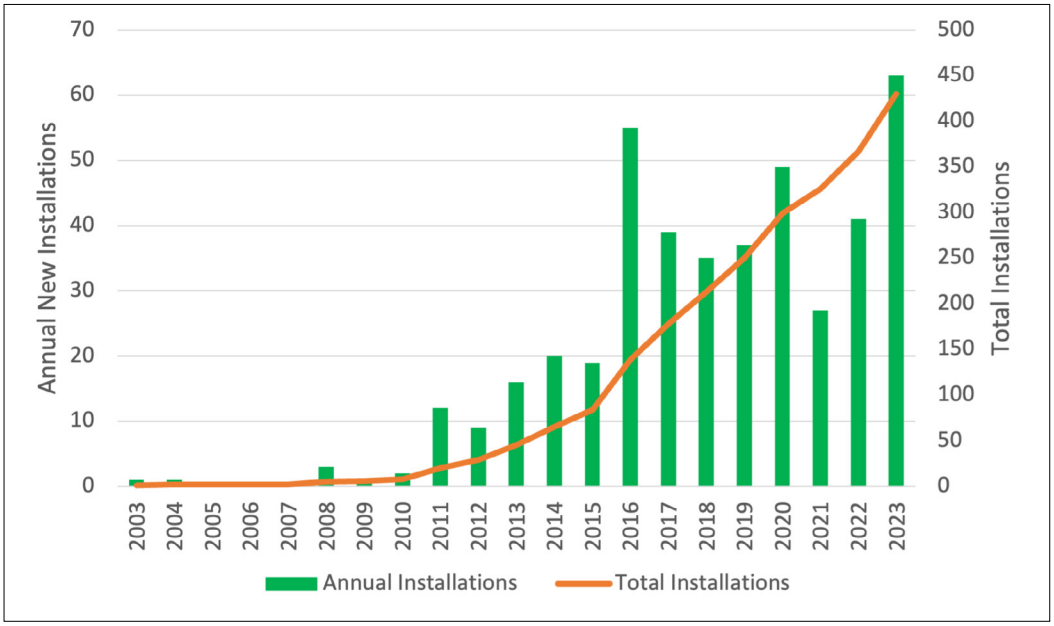
Source: Rutgers Center for Green Building



Maplewood has seen two organized efforts to promote local solar adoption. In 2014, a group of residents of Maplewood and South Orange initiated "Solarize SOMA," to contract with Astrum Solar to promote residential solar at advantageous terms. Then in 2016 -2017 as part of the Sustainable Jersey Solar Challenge, Maplewood partnered with solar marketplace EnergySage to create an online marketplace specific to Maplewood residents. As seen in Chart 11, Maplewood's solar installations increased significantly between 2015 and 2020, suggesting the two campaigns had a noticeable impact on local solar adoption.

Chart 11: Maplewood Annual New Solar Installations

Source: NJ Clean Energy Program Solar Activity Reports Dec 2023



Measures of Success

- Renewed public awareness of the current opportunities for and benefits of solar.
- Interest in the commercial and industrial sector in solar including the possibility of hosting a community solar installation.
- Discussions will have begun with PSE&G about providing increased interconnection capacity.
- A 30% increase in solar interconnection applications from the 2021 -2022 baseline by the end of 2025.

Next Step(s)

1. Community Energy Plan Team contacts neighboring towns to seek collaborators on the initiative, creating a multi-municipality campaign, if possible.
2. Community Energy Plan Team creates draft plan for the campaign. Environmental Commission members reach out to EnergySage to inquire about updating the 2016-17 campaign website (or creation of new website).
3. Community Energy Plan Team drafts municipal resolution of support for the outreach campaign and sends it to Township Committee for approval.
4. Community Energy Plan Team creates outreach plan involving multiple forms of media.

Maplewood Township Initiative 2 (D):
Support Participation in Community Solar

Description

New Jersey's Community Solar program is a viable and attractive option for the majority of Maplewood households who are unable to host solar installations on their own residences. By publicizing the benefits of the Community Solar program Maplewood can increase the level of participation.

Opportunities also exist for the Township to encourage local businesses to consider hosting a community solar facility. The Community Solar program was made permanent by legislation signed in January 2024 with the requirement that 51% of subscribers to each project come from Low and Moderate Income (LMI) households.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Community Energy Plan Team	April 2024	N/A	18 months	N/A

Department(s) Involved

- Administration
- Community Energy Plan Team
- Mayor and Township Committee

Obstacles/Barriers

- Mistrust of solar and other energy offers that seem "too good to be true" due to extensive marketing historically by less than fully honest entities.
- Problems getting the word out to all sectors of the community, especially reaching low- and moderate-income households, that Community Solar vendors are legitimate BPU-regulated businesses.

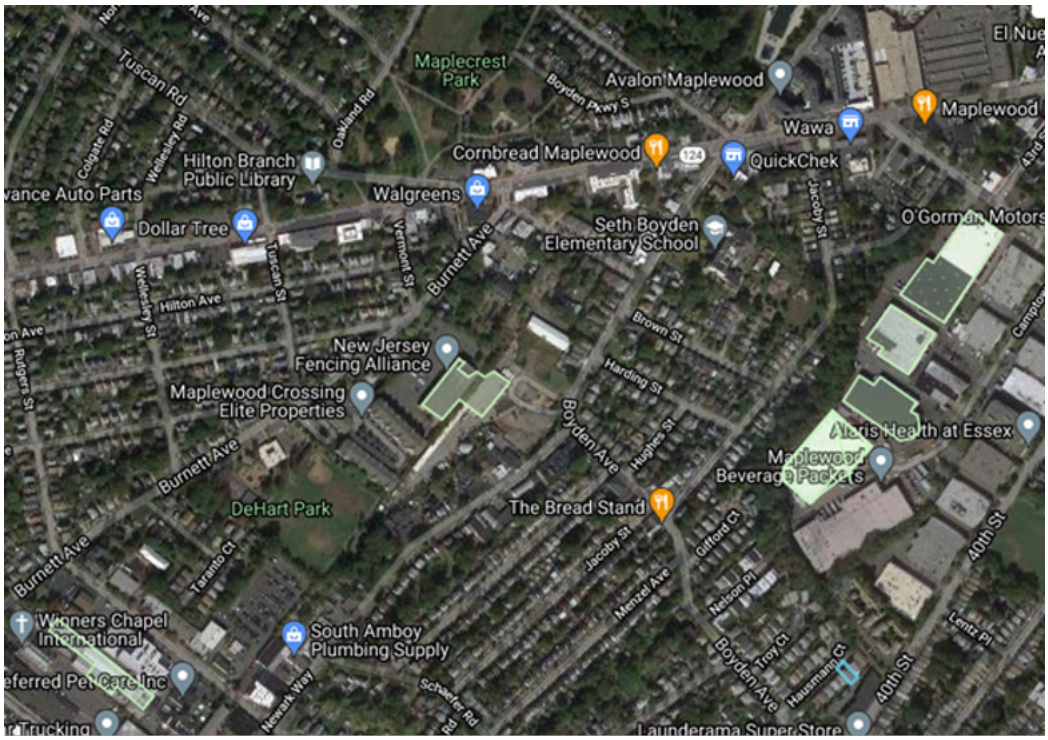
Community Notes

Due to the relatively low percentage of suitable local sites for solar installations, Community Solar is an ideal solution for many in Maplewood. Far more residents are interested in supporting the environmental benefits and in taking advantage of the savings of solar than can host a solar site on their own properties.

There are several current and planned community solar projects available for local residents' participation. That about one-third of Maplewood households have an annual income of under $100,000 means there are many households who are eligible for the Community Solar Low/Moderate Income enhanced savings. (See Table 4 in Initiative 6 (A)). The Maplewood Township Committee passed a resolution of support for Community Solar in 2022 enabling official support, including announcements and tabling at community events. There are no Community Solar installations in Maplewood and only a small number of buildings that may be large enough.

Map 4: Potential Community Solar Sites in Maplewood over One Acre

Source: Google Maps



Measures of Success

- Renewed public awareness of the current opportunities for and benefits of solar.
- Doubling the number of participants each year in 2024 and 2025.
- Interest in the commercial and industrial sector in solar including the possibility of hosting a community solar installation.

Next Step(s)

1. Community Energy Plan Team drafts municipal resolution of support for the outreach campaign and sends it to Township Committee for approval.
2. Community Energy Plan Team creates an outreach plan, with a particular focus on LMI residents, involving multiple forms of media, including testimonials from residents who have subscribed to community solar projects.
3. The owners of all potential host sites have been contacted.

NEW JERSEY ENERGY MASTER PLAN STRATEGY 3:
Maximize Energy Efficiency and Conservation and Reduce Peak Demand

Expanding renewable energy generation is necessary to eliminate greenhouse gas emissions from our Energy efficiency and conservation can be the most cost-effective methods of reducing greenhouse gas emissions from the energy system. Improving energy efficiency also generates local jobs, reduces local pollution, improves health and comfort, and adds resiliency to the energy system. Maplewood can utilize energy efficiency to lower costs in municipal operations and encourage the community to follow suit to realize these many benefits.

Maplewood Township Initiative 3 (A):
Upgrade Energy Efficiency for Municipal Facilities

Description

Upgrade municipal facilities to be more energy efficient. New Jersey's Clean Energy Program and electric and natural gas utilities offer incentive programs that guide municipalities through the upgrade process, starting with free audits to establish the most effective measures to reduce energy use. Following implementation, showcase upgrades in energy efficiency outreach to local businesses.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Engineering	October 2024	High	4 months	PSE&G Partnership Program

Department(s) Involved

- Administration
- Engineering
- Public Works

Obstacles/Barriers

- Costs not covered by incentive programs
- Lack of funding for building shell improvements

Community Notes

In 2018, the Township of Maplewood used the Local Government Energy Audit to do assessments on 13 facilities including: Town Hall, Town Hall Rear Buildings (Greenhouses), Police & Courthouse, Public Works Building, Main Firehouse, Community Pool, DeHart Community Center, Boyden Avenue Firehouse, 1978 Arts Center, The Woodland, Burgdorff Cultural Center, Memorial Library, and Hilton Library. The audit identified $249,000 worth of cost-effective upgrades that could be made to Maplewood's municipal facilities.

The municipality considered undergoing an Energy Savings Improvement Plan (ESIP), a financing tool managed for the NJBPU. However, after consideration the administrative and financial burdens of using the tool outweighed the possible benefits. In October 2023, the municipality was selected to participate in the Sustainable Jersey-PSE&G Partnership Program, a technical assistance program to assist the municipality in identifying and taking advantage of the most beneficial incentive program.

Table 3: Cost Effective Energy Upgrades for Maplewood's Municipal Facilities

Source: Local Government Energy Audit (LGEA) Report.
Source: https://njcleanenergy.com/files/file/0%20LGEA%20Presentations/M/M_%20Township%20of%20Maplewood(MGGMPLW).pdf

Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated Install Cost ($)	Estimated Incentive ($)*	Estimated Net Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades	294,244	74.5	0.0	$48,094.41	$193,799.78	$29,610.00	$164,189.78	3.4	296,301
Install LED Fixtures	66,855	12.0	0.0	$10,837.18	$39,145.53	$8,295.00	$30,850.53	2.8	67,323
Retrofit Fluorescent Fixtures with LED Lamps and Drivers	2,591	1.2	0.0	$505.50	$3,405.00	$115.00	$3,290.00	6.5	2,609
Retrofit Fixtures with LED Lamps	223,151	61.2	0.0	$36,429.91	$148,130.13	$21,200.00	$126,930.13	3.5	224,712
Install LED Exit Signs	1,647	0.1	0.0	$321.82	$3,119.12	$0.00	$3,119.12	9.7	1,658
Lighting Control Measures	34,948	9.0	0.0	$5,883.03	$32,216.00	$4,840.00	$27,376.00	4.7	35,192
Install Occupancy Sensor Lighting Controls	26,802	7.4	0.0	$4,559.76	$27,216.00	$3,240.00	$23,976.00	5.3	26,989
Install High/Low Lighitng Controls	8,146	1.6	0.0	$1,323.27	$5,000.00	$1,600.00	$3,400.00	2.6	8,203
Motor Upgrades	1,481	0.6	0.0	$282.73	$4,672.59	$0.00	$4,672.59	16.5	1,492
Premium Efficiency Motors	1,481	0.6	0.0	$282.73	$4,672.59	$0.00	$4,672.59	16.5	1,492
Variable Frequency Drive (VFD) Measures	3,922	2.2	0.0	$786.55	$17,563.72	$1,360.00	$16,203.72	20.6	3,949
Install VFDs on Constant Volume (CV) HVAC	3,922	2.2	0.0	$786.55	$17,563.72	$1,360.00	$16,203.72	20.6	3,949
Electric Unitary HVAC Measures	30,023	26.8	0.0	$5,458.04	$226,858.48	$7,218.00	$219,640.48	40.2	30,233
Install High Efficiency Electric AC	30,023	26.8	0.0	$5,458.04	$226,858.48	$7,218.00	$219,640.48	40.2	30,233
Gas Heating (HVAC/Process) Replacement	0	0.0	192.3	$1,745.78	$39,314.27	$3,814.60	$35,499.67	20.3	22,515
Install High Efficiency Hot Water Boilers	0	0.0	176.5	$1,599.15	$35,825.04	$3,414.60	$32,410.44	20.3	20,669
Install High Efficiency Furnaces	0	0.0	15.8	$146.63	$3,489.23	$400.00	$3,089.23	21.1	1,846
Domestic Water Heating Upgrade	42	0.0	5.6	$60.92	$107.55	$0.00	$107.55	1.8	697
Install Low-Flow Domestic Hot Water Devices	42	0.0	5.6	$60.92	$107.55	$0.00	$107.55	1.8	697
Plug Load Equipment Control - Vending Machine	7,475	0.0	0.0	$1,219.85	$1,610.00	$0.00	$1,610.00	1.3	7,527
Vending Machine Control	7,475	0.0	0.0	$1,219.85	$1,610.00	$0.00	$1,610.00	1.3	7,527
TOTALS	372,136	113.2	197.9	$63,531.31	$516,142.39	$46,842.60	$469,299.79	7.4	397,907

* - All incentives presented in this table are based on NJ Smart Start Building equipment incentives and assume proposed equipment meets minimum performance criteria for that program.
** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Measures of Success

The goal of this initiative is Direct Install or similar assessments for all municipal buildings.

Next Step(s)

1. Administration and Engineering will work with the technical assistance team at Sustainable Jersey to analyze utility data.
2. Once the data is analyzed, the Administrator and Engineer will work with the Sustainable Jersey Technical Assistance team to implement the selected energy upgrade measures.

Maplewood Township Initiative 3 (B):
Residential Energy Efficiency Outreach Campaign

Description

Upgrade municipal facilities to be more energy efficient. New Jersey's Clean Energy Program and electric and natural gas utilities offer incentive programs that guide municipalities through the upgrade process, starting with free audits to establish the most effective measures to reduce energy use. Following implementation, showcase upgrades in energy efficiency outreach to local businesses.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Community Energy Plan Team	Ongoing	High	Multiyear	Sustainable Essex Alliance Energy Efficiency Program Aggregation Carveout Grants

Department(s) Involved

- Community Development: Construction Division
- Public Health & Social Services

Obstacles/Barriers

- Two-thirds of Maplewood homes are more than 80 years old. Older homes present challenging energy efficiency improvement options.
- Competing priorities for residents' home improvement decisions.
- Weak local energy efficiency contractor base.
- Major upfront investment with long payback periods for most major energy reduction improvements.
- Low participation rate in New Jersey's Clean Energy programs.

Springfield Avenue MayFest

Photo credit: Springfield Avenue Public Art Initiative

Community Notes

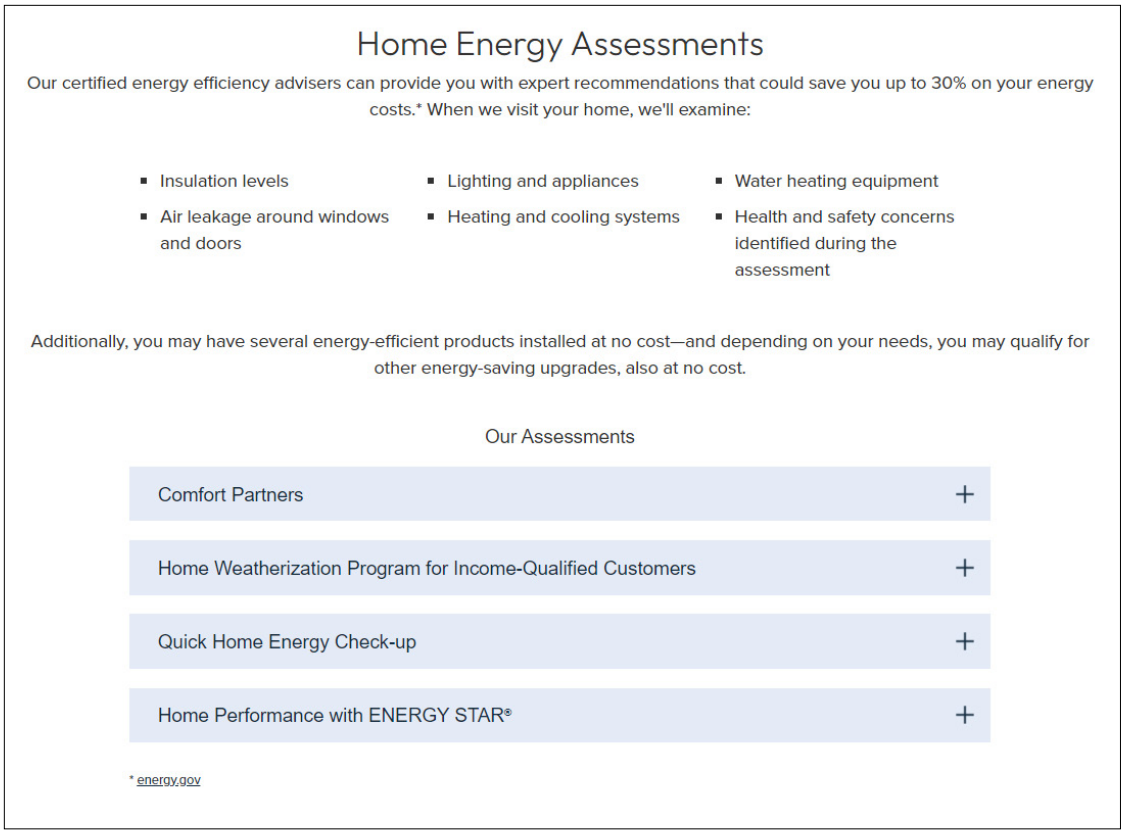
Improving the energy efficiency of Maplewood's residential buildings along with the related electrification of heating and of vehicle charging will have the largest impact on the Township's energy related greenhouse gas emissions. See Chart 7 "Overall GHG Emissions of Maplewood by Subsector". Despite several efforts by Maplewood's sustainability community over the last 15 years, annual residential energy consumption has remained stubbornly level. 77% of housing units are owner occupied according to the U.S. Census and rapidly increasing home values in Maplewood provide opportunities to use added equity, but other improvements are perceived to have a larger impact on home value. 510 residential energy efficiency projects were completed in Maplewood from 2008 to 2021, which is 6.8% of the 7,496 housing units. This number includes projects from the Home Performance with ENERGY STAR, Comfort Partners, Home Weatherization Program for Income-Qualified Customers, and PSE&G Whole House programs (Sustainable Jersey, Lifetime Residential Energy Efficiency Program Participation Rate (2021)).

From fall 2021 to winter 2023, the Sustainable Essex Alliance Energy Efficiency Program, including four other Essex County towns with Maplewood as the lead agency, ran a pilot program that showed some success in supporting residents in navigating their energy efficiency decisions. This program is ongoing and will be continued in 2024.

All but a few Maplewood residences are in the PSE&G territory. PSE&G offers a suite of residential energy efficiency options including appliance and HVAC rebates, Quick Audits, incentives for comprehensive efficiency packages, and programs for income eligible households. See Appendix A for programs available in January 2024.

PSE&G Webpage (January 2024)

Source: https://homeenergy.pseg.com/assessments



Home Energy Assessments

Our certified energy efficiency advisers can provide you with expert recommendations that could save you up to 30% on your energy costs.* When we visit your home, we'll examine:

- Insulation levels
- Air leakage around windows and doors
- Lighting and appliances
- Heating and cooling systems
- Water heating equipment
- Health and safety concerns identified during the assessment

Additionally, you may have several energy-efficient products installed at no cost—and depending on your needs, you may qualify for other energy-saving upgrades, also at no cost.

Our Assessments

Comfort Partners +

Home Weatherization Program for Income-Qualified Customers +

Quick Home Energy Check-up +

Home Performance with ENERGY STAR® +

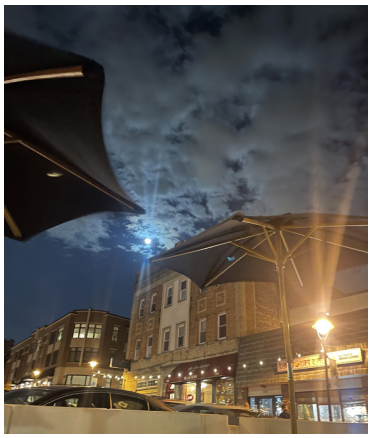
* energy.gov

Measures of Success

- A new phase of the Sustainable Essex Alliance Energy Efficiency Program support and homeowner planning is initiated in 2024.
- An expanded pool of contractors offering high quality energy efficiency and heat pump installations is developing.
- Increased community understanding of the value of energy efficiency and electrification—neighbors talking to neighbors.

Next Step(s)

1. Maplewood, as Lead Agency for the Sustainable Essex Alliance, continues to seek opportunities for municipal energy aggregation contracts at an electricity supply cost below the utility charge.
2. Maplewood leads the other Sustainable Essex Alliance towns that are interested in participating in a second phase of the Sustainable Essex Alliance Energy Efficiency support program.
3. Sustainable Essex Alliance expands the list of local contractors who are successfully performing energy efficiency upgrades, heat pump installations, and other electrification measures.
4. Sustainable Essex Alliance develops and distributes stories of successful local energy efficiency projects.



Maplewood Avenue, Downtown Commercial District
Photo credit: Kristy Ranieri

Maplewood Township Initiative 3 (C): Commercial Energy Efficiency Outreach Campaign

Description

Upgrade municipal facilities to be more energy efficient. New Jersey's Clean Energy Program and electric and natural gas utilities offer incentive programs that guide municipalities through the upgrade process, starting with free audits to establish the most effective measures to reduce energy use. Following implementation, showcase upgrades in energy efficiency outreach to local businesses.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Community Energy Plan Team	Ongoing	High	Multiyear	Sustainable Essex Alliance Energy Efficiency Program Aggregation Carveout Grants

Department(s) Involved

- Community Development: Construction Division
- Public Health & Social Services

Obstacles/Barriers

- Two-thirds of Maplewood homes are more than 80 years old. Older homes present challenging energy efficiency improvement options.
- Competing priorities for residents' home improvement decisions.
- Weak local energy efficiency contractor base.
- Major upfront investment with long payback periods for most major energy reduction improvements.
- Low participation rate in New Jersey's Clean Energy programs.

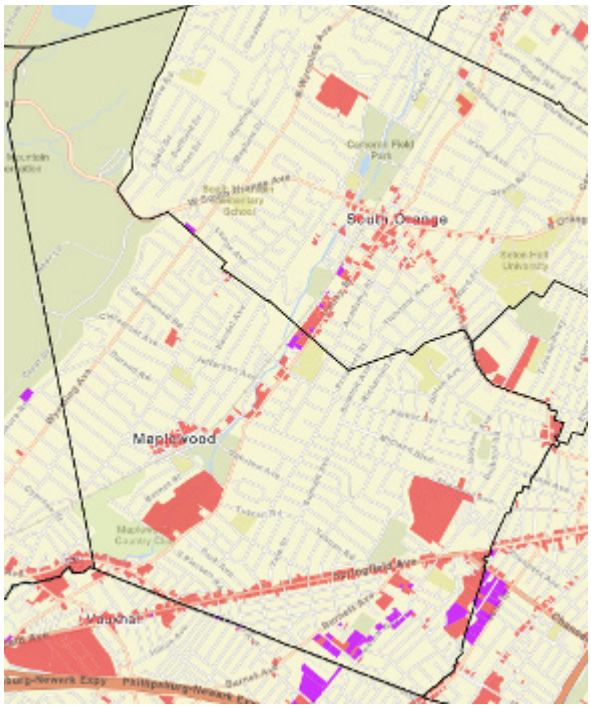
Community Notes

As of 2023, there were 297 commercial and 29 industrial properties on the tax rolls in Maplewood. These properties may be well suited for commercial renewable energy generation and energy efficiency programs such as Direct Install offered by PSE&G. From 2008 to 2021, there were 43 commercial and industrial energy efficiency projects completed in Maplewood, which is 13% of the 326 commercial and industrial properties in Maplewood (Maplewood 2023 Assessment and 2024 Proposed Assessment (database), and Sustainable Jersey, Lifetime Commercial Energy Efficiency Program Participation Rate (2021)).

Map 4: Commercial and Industrial Properties of Maplewood

Key: ■ = Commercial; ■ = Industrial

Source: Sustainable Jersey. NJ Commercial & Industrial Properties Map



Measures of Success

- A majority of commercial businesses are aware of the energy efficiency programs that are currently available.
- Stories of successful efficiency measures are circulating among peers in business community, including examples of landlords and tenants cooperating for energy efficiency

Next Step(s)

1. Community Energy Plan team designates a commercial energy efficiency outreach coordinator.
2. Circulate updated information about available programs to all identified.
3. Develop a portfolio of stories of successful commercial energy efficiency projects for a range of business types

NEW JERSEY ENERGY MASTER PLAN STRATEGY 4:
Reduce Energy Consumption and Emissions from the Building Sector

According to New Jersey's Energy Master Plan, 62% of the state's total end-use energy consumption is associated with buildings, with space heating, water heating, appliances, and industrial uses accounting for 28% of New Jersey's greenhouse gas emissions. Decisions made during new construction and building retrofits have significant and long-lasting impacts on this energy use. Maplewood can reduce energy use and emissions from buildings by prioritizing green design in new construction and utilizing municipal buildings as models for the community.

Architects' image of Maplewood's Library for the 21st Century–planned to be a LEED-Gold certified, energy efficient, fossil fuel free building–due to be completed fall 2024

Image source: https://www.maplewoodlibrary.org/

Maplewood Township Initiative 4 (A):
Make New Energy Investments in Municipal Building Models of Future-Oriented Innovation

Description

Implement a policy encouraging or requiring consideration of green building practices for any new municipal construction project, including substantial renovations and all major HVAC replacements. Highlight incentives from New Jersey's Clean Energy Program (NJCEP's) New Construction Energy Efficiency program. Following construction, showcase green building features with on-site kiosks and digital webpages to encourage others to follow suit.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Engineering	Ongoing	High	Four months to pass policy, then ongoing	N/A

Department(s) Involved

- Administration
- Engineering
- Community Energy Plan Team
- Public Works
- Township Committee
- Finance & Taxes

Obstacles/Barriers

- Lack of experience and commitment from construction contractors with up-to-date efficient energy technologies.
- Potentially higher upfront costs will require long-term budgeting consideration.
- Energy efficiency is a low priority for the South Orange-Maplewood School District, and it does not currently participate in Maplewood sustainability efforts.

Community Notes

The township has no official green building policy for construction of municipal buildings. The two most recent major construction projects have been designed to LEED specifications or higher including the major library rebuilding as an all-electric building. All township buildings have been assessed through the Local Government Energy Audit program and considerations have been made for using the Direct Install program to support equipment upgrades where appropriate. In the absence of a formal policy and green building plan, support from the Engineering Department and the Township Committee has led to consideration of efficiency options on a case-by-case basis. A consultant to the Township Engineer has completed an investigation report showing the feasibility of replacing the existing gas and oil heating systems at the Police/Court building and Community Greenhouse with electric heat pumps subject to the availability of capital funding. The South Orange-Maplewood School District has five school buildings and two administrative buildings that are large energy users, but the District is not currently working with the Township on energy efficiency measures.

Measures of Success

- Creation of an official Green Building Policy for new construction and renovation of municipal facilities.
- This policy includes considering the option to change fossil fuel based systems to heat pump or other electrical systems during all major replacement projects.

Next Step(s)

1. Community Energy Plan Team drafts Green Building Policy for municipal new construction and major renovations including HVAC replacement.
2. Community Energy Plan Team presents draft to Township Administrator, Department of Public Works, Engineering Department, and municipal attorney for feedback.
3. Community Energy Plan Team finalizes Green Building Policy and presents it to the Township Committee for approval and implementation.

NEW JERSEY ENERGY MASTER PLAN STRATEGY 6:
Support Community Energy Planning and Action with an Emphasis on Encouraging and Supporting Participation by the Low- and Moderate-Income Community

New Jersey's Energy Master Plan calls for Community Energy Plans like this one to drive a rapid shift to a clean energy system that specifically benefits low- and moderate-income (LMI) and environmental justice (EJ) residents. Under the current system, low- and moderate-income residents often struggle to afford energy resources such as electricity and gasoline. Meanwhile, environmental justice communities suffer from health problems caused by pollution from the fossil-fuel-based energy system. By integrating the needs of the LMI community with local energy initiatives, Maplewood can alleviate burdens on these communities caused by the current system while mitigating global climate change.

Seth Boyden Elementary School Outdoor Classroom
Photo credit: Kristy Ranieri

Maplewood Township Initiative 6 (A):
Conduct Energy Efficiency Outreach to Low- and Moderate-Income Residents

Description

Promote state/utility energy efficiency programs for low- and moderate-income residents using community-serving institutions as messengers, providing non-English promotional materials where appropriate, and emphasizing co-benefits of energy efficiency upgrades (health, safety, and comfort).

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Community Energy Plan Team	May 2024	High	8 months	N/A

Department(s) Involved

- Community Development: Code Enforcement Division
- Public Health & Social Services

Obstacles/Barriers

- Identifying eligible households is challenging.
- Target audience may be skeptical of utility programs such as Comfort Partners.

- Income-eligible households often have competing demands on their time with energy efficiency having a lower priority.
- Renters need to coordinate with their landlords.
- Potential language barriers exist for some income-eligible households.
- Income-eligible properties may need to resolve pre-existing building problems before energy efficiency can proceed (See Initiative 6.6)

Community Notes

Data on the participation of Maplewood's low- and moderate-income residents in residential energy efficiency programs is unavailable. However, overall participation in these programs has been low. The U.S. Census American Community Survey estimated that in 2022: 8% of Maplewood households had incomes less than $35,000, 13% less than $50,000, 23% less than $75,000, and 39% less than $125,000. Based on these incomes, a significant number of Maplewood households should be eligible for the comprehensive free or substantially subsidized Comfort Partners and Home Weatherization programs. Several past attempts to enroll Maplewood residents in these programs have fallen short, often due to inconsistencies in the availability of Comfort Partners funding. The addition of the middle-income Home Weatherization Program significantly expands the number of eligible households.

Table 4: Maplewood Household Incomes in 2022

Source: U.S. Census American Community Survey (ACS)

S1901 | Income in the Past 12 Months (in 2022 Inflation-Adjusted Dollars)

American Community Survey | 2022: ACS 5-Year Estimates Subject Tables

Notes | Geos 1 | Topics | C

	Maplewood township, Essex County, New Jersey	
	Households	
Label	Estimate	Margin of Error
Total	8,401	±418
Less than $10,000	2.3%	±1.4
$10,000 to $14,999	1.3%	±1.1
$15,000 to $24,999	2.1%	±1.5
$25,000 to $34,999	2.3%	±1.1
$35,000 to $49,999	5.6%	±1.9
$50,000 to $74,999	9.8%	±2.9
$75,000 to $99,999	8.8%	±2.6
$100,000 to $149,999	14.3%	±3.5
$150,000 to $199,999	10.2%	±2.4
$200,000 or more	43.3%	±3.8

Table 5: Household Incomes for New Jersey Comfort Partners Program

Source: https://njcleanenergy.com/residential/programs/comfort-partners/comfort-partners

Eligibility Requirements

The Comfort Partners Program is available to any New Jersey household with significant energy use, having an income at or below 250% of the federal poverty guidelines.

NEW JERSEY COMFORT PARTNERS
2024 Income Guidelines

(250% of the Federal Poverty Guidelines)			
Size of Family	Weekly Income	Monthly Income	Yearly Income
1	$724	$3,138	$37,650
2	$983	$4,258	$51,100
3	$1,241	$5,379	$64,550
4	$1,500	$6,500	$78,000
5	$1,759	$7,621	$91,450
6	$2,017	$8,742	$104,900
7	$2,276	$9,863	$118,350
8	$2,535	$10,983	$131,800

For family units with more than 8 family members:
Add $259 to the weekly income, $1,121 to the monthly income,
or $13,450 to the yearly income for each additional member.

Table 6: Household Incomes for PSE&G's Home Weatherization Program for PSE&G's Income-Qualified Customers

Source: https://homeenergy.pseg.com/homeweatherization

Household Income Levels

(Based on 2024 Federal Poverty Levels)

Number of People in Your Home	Annual Minimum Household Income	Annual Maximum Household Income	Monthly Minimum Household Income	Monthly Maximum Household Income
1	$37,651	$60,240	$3,138	$5,020
2	$51,101	$81,760	$4,258	$6,813
3	$64,551	$103,280	$5,379	$8,607
4	$78,001	$124,800	$6,500	$10,400
5	$91,451	$146,320	$7,621	$12,193
6	$104,901	$167,840	$8,742	$13,987
7	$118,351	$189,360	$9,863	$15,780
8	$131,801	$210,880	$10,983	$17,573

Measures of Success

The goal of this initiative is to create awareness in Maplewood of the energy efficiency and utility assistance resources available to low- and moderate-income residents.

Next Step(s)

1. Community Energy Plan Team designates a contact to the PSE&G's Home Weatherization Program for Income-Qualified Customers and NJ Comfort Partners Program outreach coordinators to request assistance in planning an income-eligible outreach campaign.
2. The outreach campaign will be made available in English, Spanish, and Haitian Creole and include materials featuring statements from Maplewood residents who have participated in these programs.
3. After initial residents have participated in these programs, conduct a follow-up evaluation to determine areas of success and identify areas for improvement.

Maplewood Township Initiative 6 (B):
Support Low- and Moderate-Income Community Energy Efficiency Upgrades by Resolving Pre-existing Building Deficiencies

Description

Leverage funding sources to support building improvements necessary to overcome health and safety deficiencies for Low- and Moderate-Income (LMI) residents' homes to allow them to move forward with energy efficiency upgrades for which they would otherwise be eligible.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Community Energy Plan Team	July 2024	High	Ongoing	Essex County & TBD

Department(s) Involved

- Community Development: Construction Division
- Community Development: Code Enforcement Division
- Public Health & Social Services
- Finance & Taxes: Purchasing

Obstacles/Barriers

- The cost of repairs varies; some will require substantial funding support.
- Getting repairs done will require prolonged attention from the building owner.
- Renters will need the support of their landlords.

Community Notes

Maplewood's housing stock is older than average and in some instances owners of residences have not been able to keep up with basic health and safety maintenance. Water leaks, mold, presence of asbestos, and similar problems stand in the way of energy efficiency upgrades which inherently involve reducing the rate of infiltration of outside fresh air. LMI residents are prevented from taking advantage of the NJ Comfort Partners Program and other subsidized energy efficiency programs until these problems are resolved.

Measures of Success

This initiative will be successful when residents who are eligible for LMI energy efficiency support either get work done before applying for one of the energy efficiency programs or are able to persist with the process through the repairs and be accepted into the energy efficiency program.

1. Assess the rate at which residents are being turned down from NJ Comfort Partners Program and other LMI programs for building health and safety concerns.
2. Create a budget for the financial need to address this barrier.
3. Identify existing Essex County programs and others that support these types of repairs.
4. Seek additional sources of funding.

NEW JERSEY ENERGY MASTER PLAN STRATEGY 7:
Expand the Clean Energy Innovation Economy

Clean energy industries already employ thousands of residents in the state and will employ thousands more to implement the transition to 100% clean energy. Innovation in clean energy technology and expanding the capacity of the electricity infrastructure to replace substantially all local fossil fuel use can generate further high-quality job growth while developing new tools for tackling greenhouse gas emissions. Maplewood can help lead the charge in developing New Jersey's clean energy innovation economy through forward-thinking policies and development of clean energy resources.

Maplewood Township Initiative 7 (A):
Adopt Energy Storage Policies

Description

Adopt policy and establish a planning mechanism to encourage the transition to battery energy storage systems as they become technically feasible both for short- and long-term power outages and for grid demand balancing. Post information about energy storage regulations to the municipal website and ensure that appropriate municipal staff are informed.

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Community Energy Plan Team	January 2025	Low	20 years	N/A

Department(s) Involved

- Public Safety Committee
- Emergency Management Committee
- Engineering

Obstacles/Barriers

- Lack of currently available clean technologies for energy storage for long-term power outages.
- Most of the current battery storage capacity is in vehicles with little or no capacity to power other emergency needs.
- Familiarity with storage technology is low, leading to misconceptions about safety.

Community Notes

Maplewood does not have any policies specific to battery energy storage systems. Emergency electricity needs are met using fossil fuel generators including the multi-day requirements for emergency shelters. The New Jesey Clean Energy Act of 2018 set ambitious energy storage targets for New Jersey – 600 MW by 2021 and 2,000 MW by 2030 (The New Jersey Energy Master Plan: Pathway to 2050).

Measures of Success

The goal of this initiative is to establish a comprehensive plan for fossil free energy storage systems which evolves as new technologies become available.

Next Step(s)

1. Community Energy Plan Team benchmarks energy storage plans in other jurisdictions and identifies potential technologies.
2. Building department inventories current storage systems including their locations and capacities.
3. Public safety departments will procure and distribute training for first responders to learn about responding to incidents involving energy storage systems.

Maplewood Township Initiative 7 (B):
Expand Grid Capacity to Allow Replacement of Fossil-Fuel Energy

Description

Work with PSE&G and the NJBPU to develop a plan and implementation strategy that assures that the lack of electrical grid capacity is not a barrier to a timely transition to a clean energy economy in Maplewood. Note: This Initiative is the local implementation of New Jersey Energy Master Plan Strategy 5.1 “Plan for and implement the necessary distribution system upgrades to handle increased electrification and integration of distributed energy resources.”

Lead	Start Date	Priority	Anticipated Length	Funding Sources
Township Engineer	April 2024	High	25 years	NJBPU Federal funding

Department(s) Involved

- Administration
- Engineering
- Planning Board
- Environmental Advisory Committee

Obstacles/Barriers

- Substantial Cost
- Maintaining a long-term working relationship with PSE&G
- Need to enhance the electrical grid resilience concurrently with expanding its capacity
- Challenge of developing a plan that will be implemented across multiple personnel changes in Township Engineering and Administration during its execution

Updated Power Pole and Transformer to Increase Capacity for Solar and Electric HVAC
Image source: Bob McCoy

Community Notes

The capacity of Maplewood's electrical grid is designed to meet peak air conditioning needs during the hottest days. Some areas of the township are already approaching maximum interconnection capacity for solar generation. Cold winter days place even greater capacity demands on the grid as residents and businesses transition to relying on electricity for heat.

Measures of Success

- Initiation of a working committee with representatives of the Township and PSE&G to develop a capacity expansion plan.
- Formal preliminary assessment of required grid upgrades.

Next Step(s)

1. Community Energy Plan Team benchmarks energy storage plans in other jurisdictions and identifies potential technologies.
2. Building department inventories current storage systems including their locations and capacities.
3. Public safety departments will procure and distribute training for first responders to learn about responding to incidents involving energy storage systems.

V. IMPLEMENTATION

The overall purpose of the Maplewood Community Energy Plan is to map out the actions Maplewood can take, and must take, to align local conditions and policy with the New Jersey Energy Master Plan. This local Plan has identified areas where Maplewood can contribute to the realization of New Jersey's Plan and some of the steps needed to move in the direction of the goal of 100% clean energy by 2050. Successful implementation of Maplewood's Community Energy Plan is crucial.

Electric Vehicle Charger at the Maplewood Library Hilton Branch
Photo credit: Victor DeLuca

Some aspects of this Community Energy Plan have already begun to be carried out during the year-long process of engaging with the Maplewood community and writing the details of the Plan. Several additional electric municipal vehicles have been added to the Township fleet and more are on order. An additional 46 solar projects, all residential, have been given permission to interconnect with the electricity grid. The New Jersey Community Solar Program has been made permanent.

Work on the Maplewood Community Energy Plan has brought together an effective Community Energy Plan Team with members drawn from the Maplewood Township Committee, senior Township staff, and community volunteers. The Community Energy Plan Team, reinforced with additional participants, will be responsible for moving forward the initiatives in the Plan. Most of the benefits expected from this Plan are yet to be realized and will depend on its successful implementation and the continued development of new initiatives as new opportunities develop, as additional goals are set, and as next phase plans take shape.

The Plan's success will depend on the continued support from the Township Committee in their policy and budgeting decisions and the continued cooperation and leadership of Township staff. The Community Energy Plan Team will need to meet regularly to monitor progress in fulfilling the initiatives and engage the community in the progress being made and challenges encountered. The Community Energy Plan Team will need to keep the plan fresh and active, ever adapting to new circumstances.

With the promising start embodied in its Community Energy Plan, Maplewood is on track to implement the many initiatives required to meet the goals of New Jersey's Energy Master Plan.

VI. REFERENCES

Figures

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1. Maplewood Jitney Service
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7. Overall GHG Emissions of Maplewood by Subsector and Energy Type
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3. Cost Effective Energy Upgrades for Maplewood's Municipal Facilities
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Appendix A—Financial Support Programs for Energy Projects (January 2024)

NJ ENERGY MASTER PLAN STRATEGY 1:

Reduce Energy Consumption and Emissions from the Transportation Sector

Support for Electric Vehicle Purchase:

Links:
https://homes.rewiringamerica.org/projects/driving-homeowner
https://dep.nj.gov/drivegreen/sales-and-use-tax-exemption/
https://chargeup.njcleanenergy.com

- **Federal Clean Vehicle Credit:** Tax credit (up to $7,500) for new EVs with a maximum MSRP of $55,000 and vans, pickup trucks, and SUVs with a maximum MSRP of $80,000.
- **Federal Credit for Previously-Owned Clean Vehicles**—30% tax credit (up to $4,000) for a used EV of up to 14,000 lbs., with an MSRP of up to $25,000
- **Exemption from New Jersey Sales Tax**—Exempts residents from paying state sales tax on the purchase or lease of a zero-emissions vehicle
- **Charge Up New Jersey**—Incentives of up to $4,000 for the purchase or lease of new, eligible battery electric vehicles ("Temporarily Unavailable" --program funds fully allocated as of November 2023)

Support for Installation of Chargers

Links:
https://chargeup.njcleanenergy.com
https://nj.myaccount.pseg.com/myservicepublic/electricvehicles

- **New Jersey In-Home EV Charger Incentive**—Residents can receive $250 for the purchase and installation an eligible Level 2 charger
- **New Jersey Multi-Unit Dwelling (MUD) Electric Vehicle Program**—Up to $4,000 toward the purchase of a dual-port, networked Level-Two EV charging station (Applications for FY2024 closed on November 30, 2023)
- **PSE&G Residential Smart Charging**—Customers can receive an on-bill credit of up to $1,500 per charger toward the cost of upgrading Customer-Side Make-Ready (CSMR) assets for the installation of EV charging hardware & The Off-Peak Charging credit is approximately $0.105/kWh
- **PSE&G Level 2 Mixed-Use Commercial Charging**: Customers are eligible for an on-bill credit of up to $30,000 toward the cost of upgrading Customer-Side Make-Ready (CSMR) assets for the installation of commercial, ENERGY STAR® certified, Level 2 smart chargers.

NJ ENERGY MASTER PLAN STRATEGY 2:

Accelerate Deployment of Renewable Energy and Distributed Energy Resources

Solar Installation

Links:
https://www.energy.gov/eere/solar/federal-solar-tax-credits-businesses
https://www.njcleanenergy.com/renewable-energy/programs/susi-program/adi-program
https://www.energysage.com/local-data/solar-rebates-incentives/nj/
https://njcleanenergy.com/CS

- **Federal Residential Clean Energy Credit**—30% tax credit for rooftop solar, including panel upgrade. This credit is available as Direct Pay to tax exempt entities including local governments and schools that meet fair labor requirements.
- **New Jersey Administratively Determined Solar Incentives for new solar installations**—
    - Residential--$0.09 per kilowatt hour generated
    - Non-Residential, smaller than 1 MW—$0.10 per kilowatt hour generated ($0.085 for ground-mounted)
    - Non-Residential, between 1 MW and 5 MW—$0.09 per kilowatt hour generated ($0.08) for ground-mounted)
- **New Jersey Community Solar**—significant discounts on electricity cost for subscribers

Battery Storage

Link:
https://www.energystar.gov/about/federal_tax_credits/battery_storage_technology

- Federal Residential Clean Energy Credit--30% tax credit (uncapped) for battery storage systems

NJ ENERGY MASTER PLAN STRATEGY 3: Maximize Energy Efficiency and Conservation and Reduce Peak Demand

Municipal Programs

Links:
https://www.sustainablejersey.com/grants/sj-pseg-energy-efficiency-partnership-program/
https://bizsave.pseg.com/direct-install/#request-consultation

- **Sustainable Jersey-PSE&G Partnership Program**—Free technical assistance, resources and funding for municipalities to prioritize energy efficiency in their buildings
- **PSE&G Direct Install Program**—designed to deliver comprehensive, cost-effective, energy efficiency equipment

Residential Assessment and Upgrade Programs

Links:
https://homeenergy.pseg.com/assessments &
https://njcleanenergy.com/residential/programs/comfort-partners/comfort-partners

- **Quick Home Energy Check-up**—Certified energy efficiency professional will perform an in-home assessment, providing a variety of energy-saving products as needed, at no cost
- **Home Weatherization (For Income Qualified Households**—See Table 6) --Free energy efficiency assessment and up to $7,500 in energy efficiency, health, and safety upgrades at no charge
- **Comfort Partners Program (For Income Qualified Households—See Table 5)**—Comprehensive approach to energy savings with all recommended efficiency measures and energy education services - free of charge
- **Home Performance with Energy Star**—A “whole-home” approach to energy efficiency, rebates up to $5000, and eligible for interest-free, on-bill repayment

Appendix A—Financial Support Programs for Energy Projects (January 2024) (Continued)

Residential Appliance and HVAC Rebates through PSE&G

Links:
https://www.energystar.gov/about/federal_tax_credits
https://homeenergy.pseg.com/rebates

- Air Source Heat Pump—up to $600 rebate with on bill repayment and 30% Federal Tax Credit up to $2000
- **Heat Pump Water Heater**—up to $1000 rebate with on bill repayment and 30% Federal Tax Credit
- **Geothermal Heat Pump**—up to 30% Federal Tax Credit
- **Energy Efficiency Home Improvements**—30% Federal Tax Credit up to $1200
- **Washer and Dryer**—Up to $300 Rebate for Energy Star models
- **Refrigerators**—Up to $100 Rebate for Energy Star models
- **Dishwashers, Room Air Conditioners, Dehumidifiers, & Air Purifiers**—$25 - $50 Rebates for Energy Star models

Commercial Program

Link:
https://bizsave.pseg.com/direct-install/#request-consultation

- PSE&G Direct Install Program—designed to deliver comprehensive, cost-effective, energy efficiency equipment

NJ ENERGY MASTER PLAN STRATEGY 4:
Reduce Energy Consumption and Emissions from the Building Sector

Link:
https://www.sustainablejersey.com/grants/community-energy-planning-implementation-grants/community-energy-plan-implementation-grants/

- **Community Energy Plan Implementation Grant**—Grant to support electrification of municipal building heating systems at time of failure

NJ ENERGY MASTER PLAN STRATEGY 6:
Support Community Energy Planning and Action with an Emphasis on Encouraging and Supporting Participation by the Low- and Moderate-Income Community

Links:
https://homeenergy.pseg.com/assessments & https://njcleanenergy.com/residential/programs/comfort-partners/comfort-partners

- **Home Weatherization (For Income Qualified Households—See Table 6)**—free energy efficiency assessment and up to $7,500 in energy efficiency, health, and safety upgrades at no charge
- **Comfort Partners Program (For Income Qualified Households—See Table 5)**—Comprehensive approach to energy savings with all recommended efficiency measures and energy education services—free of charge

Appendix B—References and Data Sources

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Data Sources

Sustainable Jersey data is sourced from the Sustainable Jersey Data Center.

Community Overview Data		
Section, Map or Table	**Original Source(s)**	**Link to Data**
General Information Section	U.S. Census American Community Survey (ACS)	US Census Profile by Municipality
Current Housing Units by Year Built Chart	U.S. Census ACS	Census ACS 2022 Physical Housing Characteristics
Number of Units by Structure Type Chart	U.S. Census ACS Sustainable Jersey Community Profile Data by Municipality	Census ACS 2022 Physical Housing Characteristics
Commercial & Industrial Properties Map	NJ MOD IV Tax Data	Sustainable Jersey Commercial & Industrial Properties Map
Commercial & Industrial Properties Data	Maplewood Tax Assessor	Maplewood Finance Department

Energy Use Data		
Section, Map or Table	**Original Source(s)**	**Link to Data**
Amount of Electricity Used by Sector (kWh) Chart	PSE&G	Sustainable Jersey Aggregated Community-Scale Utility Energy Data (for some years)
Amount of Natural Gas Used by Sector (Therms) Chartt	PSE&G	Sustainable Jersey Aggregated Community-Scale Utility Energy Data (for some years)
Number of Occupied Housing Units by Primary Heating Fuel	U.S. Census ACS	Census ACS 2022 Physical Housing Characteristics
Greenhouse Gas (GHG) Emissions Charts	Sustainable Jersey GHG Emissions by Municipality	Sustainable Jersey Community-Scale Greenhouse Gas (GHG) Emissions Data

Energy Efficiency and Renewable Energy Data		
Section, Map or Table	**Original Source(s)**	**Link to Data**
Solar Installations Chart	NJCEP Solar Installation Data	NJ Clean Energy Program Solar Installation Data
Commercial Energy Efficiency Program Participation Data	New Jersey Clean Energy Program (NJCEP) Data	Sustainable Jersey Energy Efficiency Program Participation (2008-2021) Data - Lifetime Commercial Participation
Residential Program Participation Data	NJCEP Data	Sustainable Jersey Energy Efficiency Program Participation (2008-2021) - Lifetime Residential Participation
Energy Efficiency Projects Completed by Municipality Data	NJCEP Data	Sustainable Jersey NJCEP Local Government Projects 2008-2021