

## Alternative Fuel Vehicles

This guidebook covers the following vehicle and fuel types:



**Plug-in electric vehicles (PEVs)** are powered—at least in part—by an electric motor using energy stored in a battery. Most commonly found in the light-duty market, these vehicles have zero tailpipe emissions and can offer lifetime financial savings over traditional gasoline vehicles.



**Natural gas vehicles (NGVs)**, primarily medium- or heavy-duty vehicles such as commercial trucks, are powered by natural gas, either in compressed or liquefied form. Benefits include life cycle emission reductions and less fuel price volatility.



**Propane vehicles** are mostly used in light-duty pick-up and medium-duty vehicles. Fleets, in particular, benefit from reduced fuel prices and emissions.



**Hydrogen fuel cell electric vehicles (FCEVs)**, specifically light-duty models, are just beginning to enter the market. Like PEVs, these vehicles have zero tailpipe emissions and are more efficient than conventional vehicles.



**Ethanol** is a liquid renewable fuel, currently found in over 97% of gasoline in the United States. E85—an ethanol-gasoline blend containing 51%-83% ethanol—can only be used in flexible fuel vehicles (FFVs).



**Biodiesel** is another renewable fuel that is commonly blended with diesel for use in heavy-duty diesel vehicles, often without any engine modification.

## THE NORTH JERSEY TRANSPORTATION

**PLANNING AUTHORITY (NJTPA)** is the federally authorized Metropolitan Planning Organization for 6.7 million people in the 13-county northern New Jersey region. Each year, the NJTPA oversees more than \$2 billion in transportation improvement projects and provides a forum for interagency cooperation and public input. It also sponsors and conducts studies, assists county planning agencies and monitors compliance with national air quality goals.



The NJTPA Region



Electricity



Natural Gas



Propane



Hydrogen



Ethanol



Biodiesel



## Preparing for Alternative Fuel Vehicles

North Jersey  
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WARREN GRETZ / NREL



CHARLES BENSINGER / NREL



WARREN GRETZ / NREL

## About the Guidebook

**THE NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY (NJTPA)** has developed **Alternative Fuel Vehicle Readiness: A Guidebook for Municipalities** to help municipalities prepare for and support increased alternative fuel vehicle usage in the community.

The guide describes the benefits and challenges of six alternative fuel vehicles and fuel types—plug-in electric, natural gas, propane, hydrogen fuel cell, ethanol and biodiesel.

It details the steps municipalities can take to plan for alternative fuel vehicles and it offers a broad range of recommended actions including zoning and parking code changes, infrastructure investments and educational outreach.

The guidebook draws upon the experiences and insights gained by working with three pilot communities—Montclair Township in Essex County, Secaucus in Hudson County and Woodbridge in Middlesex County—to develop their readiness plans. These readiness plans are also available from the NJTPA.



## Why take action?

**THE NUMBER OF** alternative fuel vehicles, particularly plug-in electric vehicles, is on the rise in New Jersey and across the nation. Consumers and fleet operators recognize the environmental, public health and economic benefits of shifting away from traditional gas-powered vehicles.

In less than three years, the number of charging stations in the NJTPA's northern New Jersey region has grown from about 75 to 200. And more than 13,000 all-electric and plug-in hybrid electric vehicles have been purchased in the region as of December 2017.

Municipalities can play an important role in the expansion of alternative fuel vehicle usage by ensuring zoning and parking regulations, and other policies do not impede the market, but rather facilitate its growth.



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## Planning for Alternative Fuel Vehicles

**MUNICIPALITIES** benefit from taking a comprehensive approach to readiness planning. The guidebook offers guidance on:

- **Establishing** a stakeholder committee or working group
- **Setting** goals and integrating them into existing municipal plans
- **Understanding** existing conditions and opportunities related to alternative fuel vehicle usage, infrastructure, regulations and potential funding sources
- **Conducting** assessments, analyses, and forecasts on the consumer and fleet markets
- **Identifying** gaps and understanding barriers to charging at multi-unit residential buildings, workplaces, and public locations

Learn more at [njtpa.org/afv](http://njtpa.org/afv)