

New Jersey Association of Rail Passengers Response to Draft EMP 2019
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Background on New Jersey Association of Rail Passengers:

“New Jersey needs a strong, interconnected transportation network to combat problems such as massive traffic congestion, air and noise pollution, and inefficient land and water use, all of which encroach upon our resources, our competitiveness and our general quality of life. As the leading consumer rail passenger organization within the state, the New Jersey Association of Railroad Passengers (NJ-ARP) has supported a balanced public transportation system for all of New Jersey.

NJ-ARP is a not-for-profit corporation established in 1980 by concerned New Jersey residents who wanted a greater voice in deciding their transit. We have played an active role both in the implementation of new passenger rail service, as well as in restoration of services. Watch (below) as the rail map changes over 30 years to see how we've help effect rail service within New Jersey.

We are a volunteer organization with NO paid staff. Our volunteers, many from within the transportation field, are among the best and most diverse in New Jersey. We often testify at hearings held by New Jersey Transit, PATH, Amtrak, PATCO, and other governmental agencies. For over three decades, NJ-ARP has been on the forefront in advocating efficient intermodal transportation solutions using rail, light rail, ferry, bus, and even bicycle.”

<https://www.nj-arp.org>

NJARP Comments

Unfortunately the Draft Energy Management Plan, while acknowledging that Transportation is the most important sector to reduce greenhouse emissions, puts the horseless carriage before the cart, indeed ahead of all other considerations. There is no mention whatsoever in “Electrify the Transportation Sector” that Electric Transportation ALREADY carries millions of passengers on electric Rail and LightRail. Electric Rail and Lightrail not only reduces greenhouse emissions but also conserves 10

times the land paved over by endless road expansion and saves the huge cost of personal car ownership for many zero- car households in New Jersey.

We do not have to wait decades for huge investments in electric cars, charging infrastructure and the continued paving over of green space. We can restore the draconian cuts in existing Rail since 2006 and expand Rail.

Morristown Train Cuts 2006-2017 (All Hoboken Trains)

Morristown	2006	2017	Cuts
Weekdays TO NY HOBOKEN	50	40	10
Weekdays FROM NY / HOBOKEN	49	39	12
Weekends TO NY/ HOBOKEN	39	19	20
Weekends FROM NY/HOBOKEN	39	19	20

Figure 4 on New Jersey Public Road Miles and Vehicle Miles Traveled actually verifies the huge impact of Rail, Lightrail and Bus cuts on people being forced to drive. It is quite telling that there was a large drop in Vehicle Miles Traveled starting in 2006, the peak of NJ Transit frequent service as gas prices increased in the wake of Peak Conventional Oil since Rail and bus service provided reasonable options to driving. But the drastic Rail cuts by Gov Corzine in 2008, followed by continued cuts by Gov Christie as well as the flooding of rail cars in Hurricane Sandy and cuts of 90% in NJ Transits operating budget from \$300 Million to \$34 Million destroyed reasonably frequent and reliable train service.

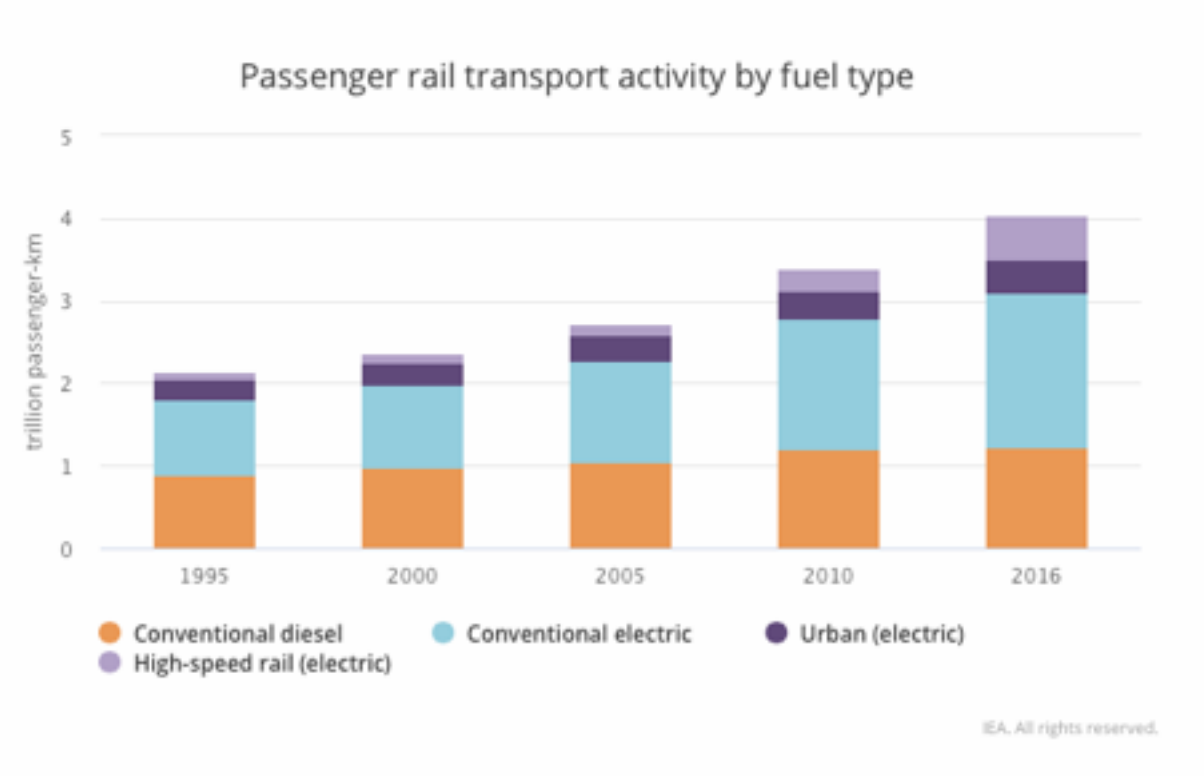
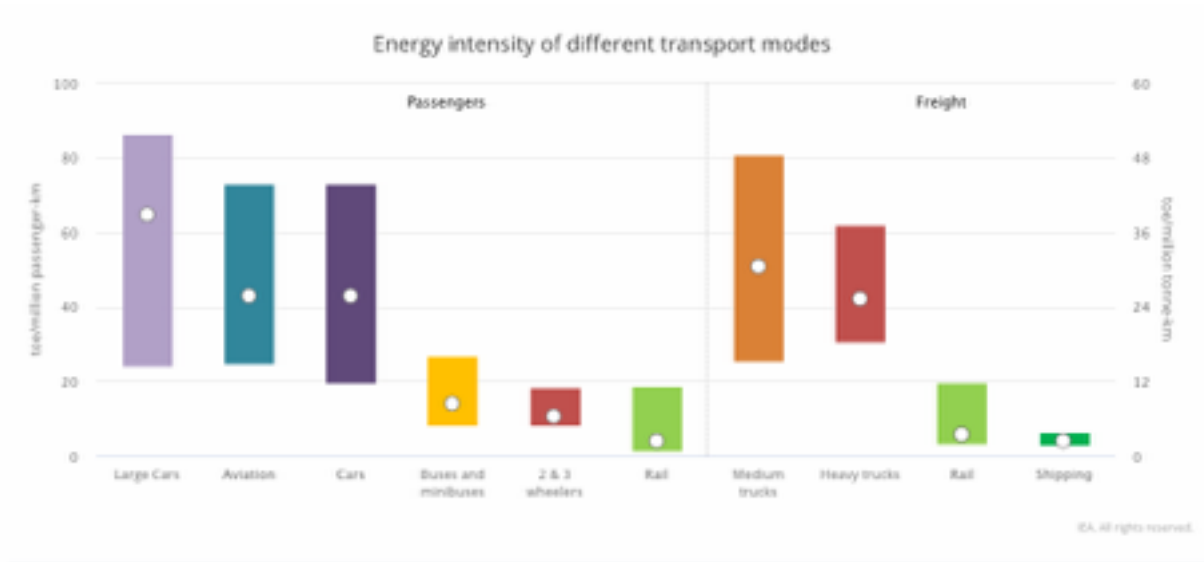
As a daily train rider from my Transit Village of Mount Tabor I observed firsthand the stampede of people to ride the trains in the wake of \$4 gas prices. The parking lot at Mt Tabor was totally filled in 2008, even though most Mt Tabor and Beacon Hill train riders walk. This was because there was no parking available in Denville and Morris Plains stations. The trains were packed to Standing Room Only even by my destination of Summit. But then astoundingly as train ridership rose by 20% NJ Transit cut Morris Line Hoboken service by 30%. This included Hoboken Express Service which besides serving Hoboken and Jersey City also provided Midtown service via the PATH taking the same time as Midtown Direct but far more reliable.

So the first order of business to increase Electric Transportation and reduce VMT is to restore train, LightRail and bus service to the frequency of 2006, particularly Hoboken service which is not constrained by the Midtown tunnel. Since this was already running in 2006 on existing Rail infrastructure this can be done as soon as locomotive engineers can be trained to run restored service.

Electric Rail - International Energy Agency Report

On Jan 30, 2019 the International Energy Agency issued a report on the critical importance of Rail and in particular Electric Rail in reducing greenhouse emissions and saving oil consumption. In particular urban and high speed rail “hold major promise to unlock substantial benefits” which include reducing greenhouse gas emissions, congestion and air pollution.

Chart of Energy usage of Transport in IEA Future of Rail



Fuel types for Rail from IEA Future of Rail

As the International Energy Agency is one of the foremost authorities on international energy usage and forecasts it is strongly advised the IEA "Future of Rail report be reviewed and incorporated into the NJ EMP.

<https://www.iea.org/futureofrail/>

A key goal of any plan to electrify NJ Transportation must be the electrification of all NJ Rail Lines.

The following Rail Lines need to be electrified:

- Morris Line - Dover to Hackettstown
- Montclair Boonton Line - Montclair State to Denville
- Pascack Valley Line
- Main Line
- Port Jervis Line
- Raritan Valley Line
- Atlantic City Line

While this is a major investment similar to getting solar panels for homes and businesses, it will pay for itself if powered by renewable energy over time. In particular the Atlantic City Line could be powered by Atlantic City wind, saving not only greenhouse emissions but also diesel or electricity costs for Electric Rail.

Solar Trains - new development

Australia had the first solar powered train using solar panels on the train cars themselves supplemented by solar panels at train stations with energy storage.

But recently the most exciting development is that Austria (in Europe) is running solar powered trains using solar panels mounted between the catenaries which power the trains.

Solar panels on existing catenaries can supply 1-3 MW of electricity per mile.

Which means that simply putting solar panels over the existing 100 miles of NJ Transit catenaries would supply all the power (104 MW) of the proposed \$400 Million Natural Gas plant.

Existing solar farm prices are \$1 Million per 1 MW - which means Solar trains instead of

Natural Gas could actually save \$300 Million over the proposed \$400 Million for Natural Gas.

This could easily be supplemented as I suggested at the last NJTPA meeting by solar panels

over all Railyards, Rail parking lots and on top of all Transit Oriented Development along with

solar energy storage via existing Tesla Powerwalls which take 1 container per 1 MW of energy storage. Green Mountain Energy from Vermont is already running these kinds of Solar micrograms so this is also not new technology.

As the article “Railway Solar May Be a Sweet Spot for Green Transportation pointed out:

“Electric trains are so efficient that a single 300-watt solar panel (about 4x6 feet) can provide up to 7,000 miles of an individual’s commuting miles per year, or 5 to 20 miles per day. The national average, based on National Transportation Database data on the efficiency of the various US electric train systems is about 4,000 miles per year for each 300-watt solar panel. One mile of train tracks can support 1 MW to 3 MW of solar panels, which can provide 2 million and 6 million passenger-miles of train travel. Yes million.”

As further explained by Tam Hunt in this article:

“Here’s another way of looking at it: my Fiat could carry the equivalent of about one 300-watt panel on its upper surface, which would provide just 4.5 miles per day of driving, or 1,643 miles per year. That same panel would provide on average 4,000 passenger miles per year. There is enough space in the existing rail infrastructure — on train stations and near train tracks - for enough solar panels for all of the electric trains power demand.”

NJ TRANSITGRID has been gifted, thanks to Senator Menendez, with \$500 Million for Sandy Relief of which astoundingly about \$400 Million will go to fund a Climate Destroying new 24x7 Natural Gas plant in the flood-prone Meadowlands. New Jersey has a unique opportunity to convert this largesse into instead funding Solar Microgrids to run NJ Transit Rail in the event the rest of the Grid goes down.

New Jersey since the time of Edison, Bell Labs and even as far back as Alexander Hamilton, has always led the way for innovation. With our expertise in NJIT, Stevens, Rutgers and others we can and should become to first in the USA to implement Solar powered Electric Rail.

<https://www.theguardian.com/world/2017/jan/10/dutch-trains-100-percent-wind-powered-ns>

<https://byronbaytrain.com.au/sustainability/>

<https://www.railtech.com/policy/2019/05/15/austrian-train-stations-powered-with-green-electricity/>

https://rail.nridigital.com/future_rail_apr19/

[shining example will solar pv power the railways of the future](#)

<https://www.greentechmedia.com/articles/read/railway-solar-may-be-a-sweet-spot-for-green-transportation#gs.2ii1qs>

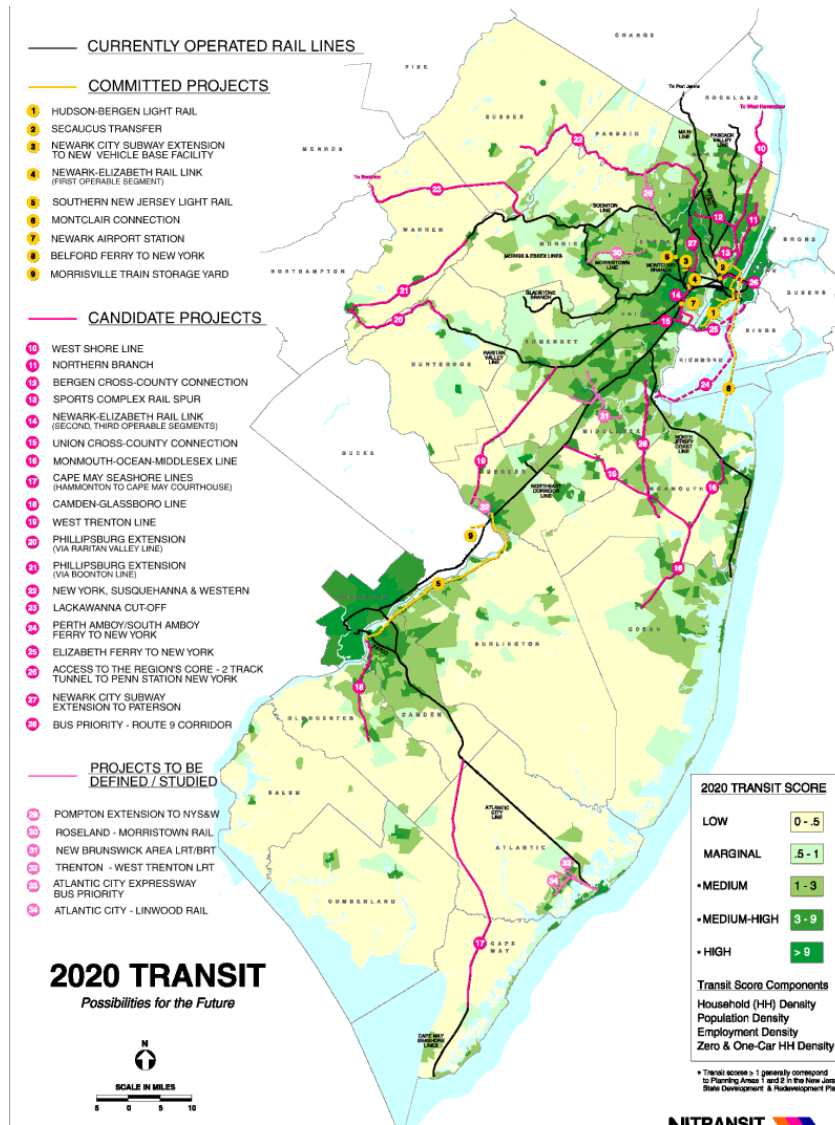
<https://www.engadget.com/2017/07/18/india-first-solar-powered-train/>

<https://www.cleangroup.org/ceg-projects/resilient-power-project/featured-installations/stafford-hill/>

Transit Oriented Development and LightRail on existing Rail ROWs

The Draft EMP does support Transit Oriented Development but of course for that to really work you need to run Transit which is as noted above has actually been drastically cut. Then as usual it suggests “Bus Rapid Transit” which has none of the advantage of Solar Rail. Furthermore New Jersey, unlike California is blessed with a legion of Rail Rights of Way which are just waiting to be restored to Electric Rail service via LightRail or Commuter Rail. For example the ongoing extension after many years of the

remarkably successful Hudson-(Bergen) LightRail to Englewood will utilize already existing Rails. Likewise the cross Passaic-Bergen Rail from Hawthorne to Paterson to Hackensack will also use existing Rail ROWs. To reduce VMT and use Solar Rail, New Jersey needs to get back to work implementing NJ Transit Vision2020 which dates all the way back to 2001. In 2001 NJ DOT then



commissioner under Gov Whitman, Jeff Warsh, completed a study of NJ Rail ROWs which was outlined in NJ Transit's Vision2020. Many of these projects were eventually built, the last completed was the Meadowlands Rail in 2009 under Gov Corzine. But for

8 years under Gov Christie not a single Rail project was completed.

Unfortunately as these Rail ROWs have lain mostly abandoned and underutilized for 8 years, becoming even more overgrown recreation trail enthusiasts have proposed paving these over for Bike Trails. NJARP instead supports Rails WITH Trails - Bike trails only take 15 feet whereas Rail ROWs are generally 30-60 feet. The Rail portion needs to be preserved for future LightRail or Rail to Warwick, Phillipsburg, Sparta, past Tenably, to Pompton Plains - all of which have existing train stations on existing Rails or Rail ROWs which could provide zero emissions Solar Rail in the future.

Environmental Justice

It is often forgotten or not even realized that New Jersey already provides transportation without a car and has the potential to greatly expand that. According to the AAA it costs \$9300 on average for each car owned.

The cost of a

Vehicle Ownership in U.S. Cities Data and Map

Some cities and areas of the country are much more auto-dependent than others.

One way to assess a city's reliance on cars is to compare shares of households without access to vehicles. An estimated 8.7 percent of U.S. households were without vehicles in 2016. Car-free households are generally much more common in densely-populated urban areas and high poverty neighborhoods where residents can't afford vehicle ownership. Research also suggests younger families and one-person households are more likely to not own a car.

Another useful measure of vehicle ownership for cities is the number of vehicles per household. According to Census survey estimates, there were about 1.8 vehicles available per U.S. household in 2016.

Both vehicle statistics are shown below for jurisdictions with populations exceeding 100,000:

Search:

Jurisdiction	2015 Households Without Vehicles	2016 Households Without Vehicles	2015 Vehicles Per Household	2016 Vehicles Per Household
New York, New York	54.5%	54.4%	0.63	0.63
Newark, New Jersey	39.2%	40.3%	0.85	0.89
Washington, District of Columbia	36.2%	37.3%	0.89	0.85
Jersey City, New Jersey	40.1%	37.1%	0.81	0.85
Cambridge, Massachusetts	30.9%	36.8%	0.90	0.85
Boston, Massachusetts	35.4%	33.8%	0.94	0.94
Paterson, New Jersey	33.6%	33.0%	1.05	1.00
Hartford, Connecticut	30.3%	32.6%	1.00	0.99
San Francisco, California	31.2%	29.9%	1.07	1.10
Philadelphia, Pennsylvania	31.1%	29.5%	1.03	1.05
New Haven, Connecticut	30.4%	29.2%	1.01	1.10

Source: Governing calculations of 2015 and 2016 one-year Census American Community Survey estimates. Note that one-year estimates have high margins of error for smaller cities.

Metropass by comparison is only \$1600.

New Jersey already has some of the top zero car cities in the US:

#2- Newark, #4- Jersey City, #7-Paterson, #12-Elizabeth