New Jersey's cleanenergy program™
njcleanenergy.com

Success Stories

NJ TRANSIT

PROJECT INFORMATION

Program Participant
- NJ TRANSIT

Location
- 1148 Newark Turnpike
  Kearny, NJ 07032

Project Contact
- Steven Jenks
  Manager of Energy & Sustainability Programs
  NJ TRANSIT

Technology
- LED lighting
- Occupancy and daylight sensors
- Wireless networking and integrated controls

Total Project Cost
- $1,238,507

NJCEP Incentives
- $928,880 through the Large Energy Users Program

Estimated Annual Savings
- 3,398,109 kWh
- $386,062

Project Payback
- 0.8 years

Project information, savings and environmental benefits were provided by the project contact.

LED lighting reduces energy demand, improves safety and saves on maintenance costs

Background

When Superstorm Sandy swept through New Jersey in 2012, power outages significantly affected homes and businesses. New Jersey Transit (NJ TRANSIT), the nation's largest statewide public transportation system, also ground to a halt. The NJ TRANSIT operations center flooded, causing damage to backup power systems, emergency generation and the computer system that controls train operations.

To prevent similar disruptions, NJ TRANSIT is partnering with the New Jersey Board of Public Utilities, the U.S. Department of Energy and the Federal Transit Administration on an electrical microgrid capable of supplying highly reliable power during storms or other times when the centralized power grid is compromised.

One of many challenges in designing this first-of-its-kind NJ TRANSITGRID Project is properly sizing the microgrid so that it provides electricity based on system demand. Before incorporating renewable and distributed generation technologies into the microgrid, NJ TRANSIT is attempting to minimize the total amount of energy that will be needed to power facilities and operations.

NJ TRANSIT set its sights on the Meadows Maintenance Complex in Kearny, NJ. The 538,000-square-foot facility maintains the safety and reliability of the NJ TRANSIT rail fleet by repairing locomotives, power engines and train cars. The complex uses high-power maintenance equipment and remains open 24 hours a day, seven days a week, making it among the most energy-intensive of NJ TRANSIT facilities.

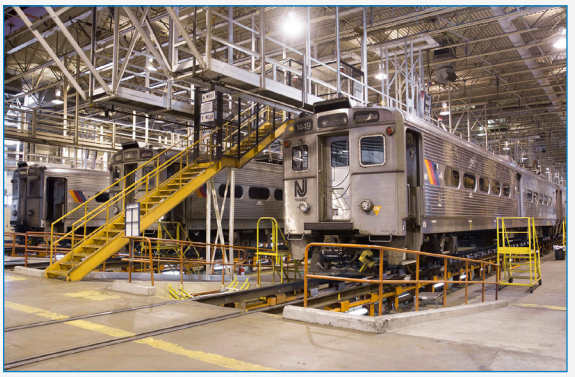

Photo courtesy Marc Glucksman/River Rail Photo. The Meadows Maintenance Complex is the main repair and maintenance inspection location for NJ TRANSIT's rail fleet. The fleet yard can store up to 60 locomotives, 50 cab cars and 200 coaches.

To afford a large-scale lighting upgrade at the Meadows Maintenance Complex, officials applied for financial incentives provided by *New Jersey's Clean Energy Program* (NJCEP).

Solution

The NJCEP Large Energy Users Program is designed to promote investment in energy efficiency and combined heat and power projects among the state's largest commercial, industrial and municipal facilities. As much as $4 million in incentives are available for eligible entities who provide annual contributions of $300,000 or more to

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This project is just one of many energy and sustainability initiatives that NJ TRANSIT is undertaking. Our goal is to reduce system-wide energy costs, enhance the services we provide to riders, and reduce greenhouse gases.

Steven Jenks
Manager of Energy & Sustainability Programs
NJ TRANSIT

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the New Jersey Clean Energy Fund through the Societal Benefits Charge.

High-intensity discharge (HID) light fixtures used throughout the Meadows Maintenance Complex were identified as cost-effective opportunities to reduce electricity consumption. In 2016, new LED lighting will replace 410 HID 1,100-watt and 81 HID 458-watt fixtures. Each fixture will have built-in occupancy and daylight sensors, wireless networking and integrated controls that will optimize light levels and fixture operation. Brighter, more intelligent lighting allows for a reduction in the total number of fixtures — from 491 down to 451 — at the complex.

The total cost to install the 451 high bay LED fixtures is $1,238,507. NJCEP provided $928,880 in incentives through the Large Energy Users Program to cover 75 percent of project costs. The project is anticipated to save the Meadows Maintenance Complex 3,398,109 kWh per year, which NJ TRANSIT estimates will result in $386,062 in annual savings.

In addition to lowering energy costs, the project is expected to produce safety and operation benefits. Currently, light intensity varies throughout the complex, posing safety risks for maintenance crews. By installing LEDs that are brighter, more durable and longer lasting, NJ TRANSIT anticipates an additional $18,830 in annual operational and maintenance savings. Combined with the electricity savings, NJ TRANSIT expects the project to pay for itself in less than a year.

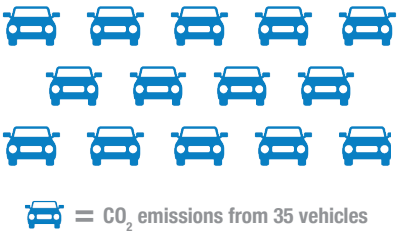
"We saw the project as an opportunity not only to lower our energy consumption but also to improve working conditions," said Steven Jenks, NJ TRANSIT Manager of Energy and Sustainability Programs. "This project is just one of many energy and sustainability initiatives that NJ TRANSIT is undertaking. Our goal is to reduce system-wide energy costs, enhance the services we provide to riders, and reduce greenhouse gases."

NJ TRANSIT
LED Lighting Project

Estimated Annual Emissions Reduction

5.17 million pounds of CO_2

Equivalent to the annual CO_2 emissions produced by 493 passenger vehicles



= CO_2 emissions from 35 vehicles

NJ TRANSIT has begun forming plans for future projects using LEUP incentives. "We will continue to leverage the Large Energy Users Program for implementing large lighting projects," Jenks said. "We want to replace all our high bay lighting with efficient lighting."