INNOVATIVE TRANSPORTATION SOLUTIONS

Brighter, More Efficient, and Safer Subway Tunnel Lighting

Every day, dozens of Metropolitan Transportation Authority (MTA) workers travel underground to repair and maintain train tunnels so that New York City subways can run safely and on schedule. They rely on underground lighting to get the job done. For years, MTA relied on fragile incandescent lighting to illuminate work sites along its 500 miles of track, but major safety concerns drove MTA to seek alternative options to meet its lighting needs.

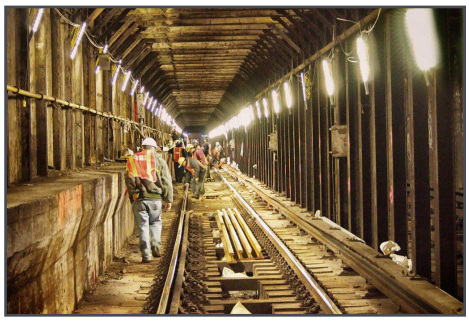
The Problems with Incandescent Bulbs

Incandescent lighting is fragile and sensitive to heat, water, and the rough handling that occurs in the underground environment. High voltage from the third rail conductor that powers the lights sometimes caused the units to overheat and catch fire, presenting a danger to workers and causing delays in construction, maintenance, and operation. In addition, incandescent bulbs use a lot of energy, with 90 percent of it given off as heat.

MTA lacked the in-house expertise to research or develop alternative lighting solutions and was hesitant to take on the risk of using an unproven technology. So MTA called on Clear-Vu Lighting, a division of Autronic Plastics, Inc., for a solution.

Partners in Research and Development

Clear-Vu had the expertise to build and deliver energy-efficient LED lighting products for MTA. They have a Long Island-based custom plastic injection molding parent company, and a niche focus in LED-based emergency lighting. But Clear-Vu was hesitant to develop a prototype until it was clear that the resulting product would sell. Clear-Vu needed a partner to help mitigate the upfront cost and risk.



New LED light banks create a brighter, safer environment for crews doing construction and maintenance work in New York City subway tunnels.

clear-vu lighting

Fast Facts

Technology: LED Lighting for subway tunnels.

Jobs Created: Three new employees hired and a new $50,000 lab space was created.

Revenue: Hundreds of units were initially ordered, which equaled more than $150,000 in sales. This prompted additional orders totalling 10,000 more units and over $3 million in sales.

Product Features: New LED light banks provide more light, are safer, more durable, and use 75 percent less energy than incandescent models, saving over 300 watts per unit.

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"As a New York based manufacturer, we are grateful for NYSERDA's help in (supporting) the research and development of this locally produced technology that both benefits and supports our community."

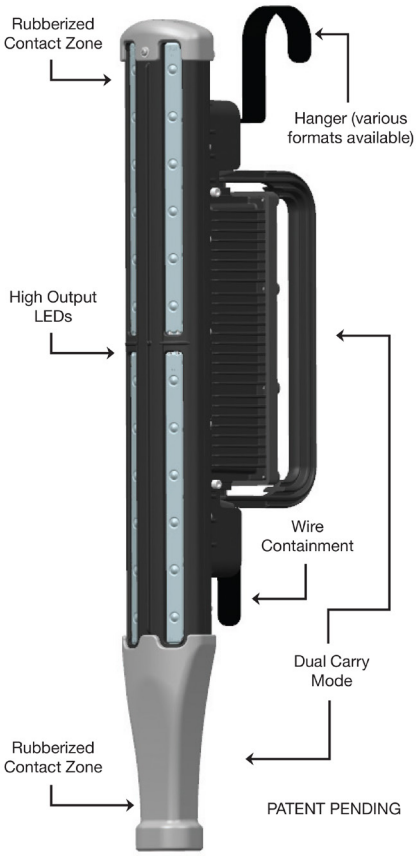
– Daniel Lax, Vice President

Enter NYSERDA. Having recently issued an Advanced Transportation solicitation jointly managed under its Transportation Innovation and Lighting Efficiency programs, NYSERDA was just the partner that Clear-Vu needed. NYSERDA shared the costs of development, attracted more funding, and helped convince the New York Power Authority to accept prototype samples for testing. Through this support, Clear-Vu was able to produce and test a working prototype of an LED light bank to replace the incandescent model MTA was using.

The Right Light for the Job

The new LED light banks draw power from the third rail (a challenging system requirement) and operate effectively in the harsh underground working conditions. In addition, with an optional battery backup system, the lights continue to work during power outages, helping reduce repair times during emergencies.

The LED light banks use 75 percent less energy than incandescent models and deliver twice as much light, saving over 300 watts per unit. With these savings, the units pay for themselves in just 18 months. MTA expects them to last 20 times as long as incandescent models. They are also safer because they generate much less heat, and their durable plastic cases do not conduct electricity.



This LED work light is offered by Clear-Vu Lighting, a division of Autronic Plastics.

NYSERDA helped pave the way for Clear-Vu to continue more research and development work. The success of its LED light bank project encouraged the company to expand its new lighting business into additional markets. These successful projects could help change how transit authorities interpret risk in developing and adopting new technology, opening doors for other lighting and efficiency upgrades in the future.

THE BENEFITS

- Economic Development
- Quality of Life
- Carbon Footprint
- Reducing Barriers

nyserda.ny.gov/Transportation

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