

Steel Mill Lighting Project Leads to Significant Annual Cost Savings and Other Intangible Benefits



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Republic Steel's Lackawanna, New York, facility has been an important fixture in the community for the better part of a century, and despite ownership changes and challenges facing the steel industry throughout that time, the manufacturer of special bar-quality steel employs more than 300 people.

This highly engineered product, used in axles, drive shafts, suspension rods and other critical components of automobiles, off-highway vehicles and industrial equipment, receives billets of steel from the company's Canton, Ohio, headquarters to produce hot-rolled bars and coiled steel.

The 30-foot billets are stretched to approximately 300-foot-long bars and coils, then cooled and packaged as a raw material for customers. The entire energy-intensive process is completed across a five-million-square-foot facility.

Republic Steel has set an ambitious goal to significantly reduce carbon emissions at all six of its manufacturing plants. Thanks to its partnership with National Grid at the company's Lackawanna facility, the steel manufacturer is well on its way to achieving that goal.

After learning about National Grid's energy-efficiency incentive programs for large commercial and industrial companies, Republic Steel called National Grid to discuss a variety of potential energy savings opportunities at the Lackawanna plant.

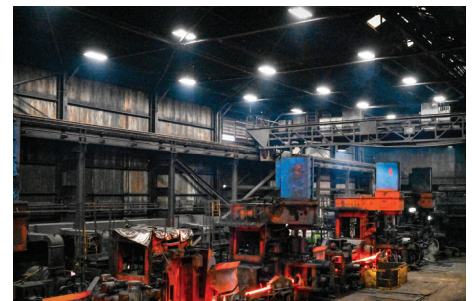
The phone call led to a walk-through of the facility, which then helped to identify a variety of ways the plant could save through energy efficiency. One immediate project that floated to the top of the priority list was lighting. After doing its due diligence, Republic Steel committed to a complete overhaul of its fluorescent lighting to LED lights.

The \$1.3 million project will result in annual savings of more than 4.7 million kWh and \$167,000. It also will reduce annual CO₂ emissions by more than 5.2 million pounds.

A key to helping the project become a reality was a National Grid \$619,000 incentive which almost cut the total capital expense of the project in half and will allow for project payback within only four years.

“Now that the plant is significantly brighter, we’re saving in other important ways. It satisfies lighting ergonomics, reduces emissions, helps identify hazards and allows us to easily see surface defects on equipment.”

– Jeff Kreuder, Plant Manager at Republic Steel



The new lights at Republic Steel's Lackawanna, NY, facility are saving money and energy while reducing CO₂ emissions and improving employee morale.

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In fact, collaboration among National Grid, its vendor TRL Energy Solutions and Republic Steel helped make the project as cost-effective as possible. Using Republic Steel's cranes and electricians, TRL was able to quickly and safely replace fluorescent bulbs with 10,000 LED bulbs by using existing fixtures and ballasts.

"This has been a great project, and I give credit to National Grid because they helped guide the entire project from conception to completion in a short amount of time," said Jeff Kreuder, plant manager at Republic Steel. "Rob Compise at National Grid has been a tremendous resource who we can call at any time for out-of-the-box ideas."

More meaningful to Republic Steel are the intangibles that came with the project.

Steel mills are not known for being well lit, and because of the sheer size of the facility, steel mill workers used flashlights to repair machinery. Now that the Lackawanna facility has installed LED bulbs, buying flashlights is an expense of the past. The building is brighter. Employees can see everything.

One example is in the cooling vent, one of the largest of its kind in the world. The LED lights make it easier to identify rolls that aren't working properly, which allows the engineering team to identify and replace chains, bolts or other machinery before they fail. This ability has already improved production efficiency and reduced downtime.

In the short time since the retrofit, Republic Steel has seen a two percent increase in yield—a major savings of as much as \$200,000 a year.



The lighting project led to many intangible benefits for Republic Steel, including improved production efficiency, reduced downtime, a two percent increase in yield and improved safety.

Another benefit is safety. The number of accidents on the site has been reduced by half when compared to the same timeframe of the previous year.

"Now that the plant is significantly brighter, we're saving in other important ways," Kreuder said. "It satisfies lighting



Marker identifying air leaks at the Republic Steel facility. Each repaired leak will save the company approximately \$1,500 a year.

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Employee morale at the steel mill also improved because of the lighting project.

"When our employees came back from our scheduled week off while the retrofit was done, you should have seen the look on their faces when we turned on the lights," said Venkatesh Vadlamani, operations manager at Republic Steel. "It was bright. We can't miss anything on the mill, and that's built so much excitement. This project alone did much to boost morale."



The National Grid partnership will continue to provide benefits at the Lackawanna steel mill. Republic Steel is exploring a compressed-air project that could yield significant energy-efficiency savings that are similar to the lighting project.

Another study is already underway to detect and mark air leaks. Each repaired leak will save Republic Steel approximately \$1,500 a year.

Also, a feasibility study is being explored through National Grid's Strategic Energy Management Partnership to see if a solar panel array or wind turbine could be built in an extra green space on the property.

"Working with National Grid on this lighting project has been tremendous," Kreuder said. "The savings from the project are important, as they will allow us to continue investing in our employees and in the community of Lackawanna. We're looking forward to accomplishing even more in partnership with National Grid."

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