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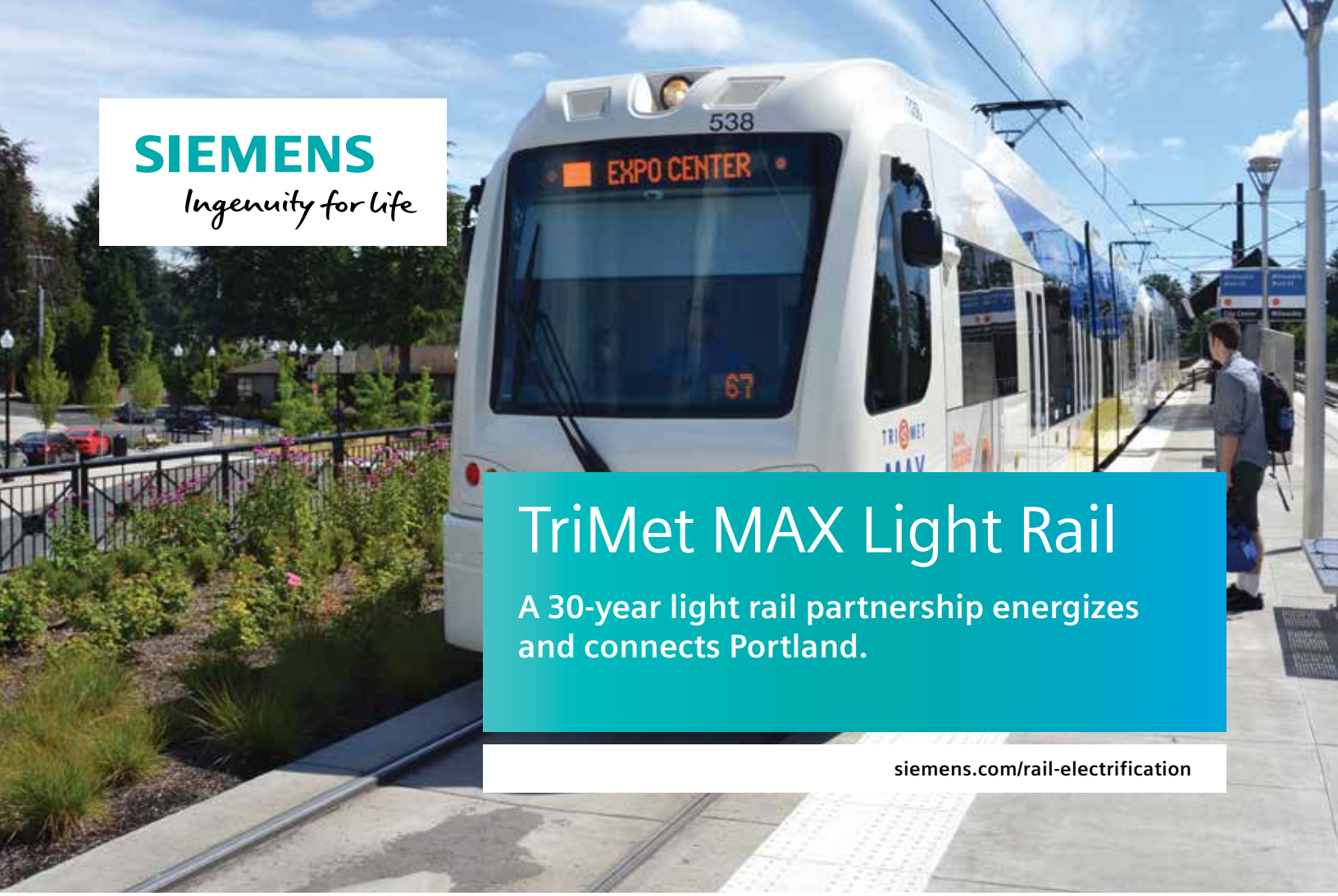

TriMet MAX Light Rail

A 30-year light rail partnership energizes and connects Portland.

siemens.com/rail-electrification

Since 1986, Portland's neighborhoods and outlying communities have come closer together, thanks to TriMet and its MAX Light Rail service. The system, consisting of six lines and more than 100 miles of track, provides Portland's citizens a safe, comfortable, and reliable commute. Through light rail, TriMet connects more than just downtown and the suburbs, it connects business, culture, and people with each other.

For 30 years, Siemens Mobility has supported TriMet's mission with rail electrification, signaling, and communications. Throughout the relationship, TriMet and Siemens have worked together to develop a light rail system unique to Portland and to keep it running on time, efficiently and reliably.

Client Objectives

When planning the MAX Light Rail system, TriMet envisioned the system long-term. The initial Blue Line would connect downtown with Gresham in the east and Hillsboro in the west. Additional lines would extend to other communities. TriMet's philosophy called for transit to grow alongside Portland's population and help knit the region together.

Success for TriMet would depend, in part, on its infrastructure partners. TriMet was looking for partners that could work with them long-term, tailor solutions to meet the specific needs of the community, and balance innovation with proven technology and budget-friendly solutions.

"The Siemens Rail Electrification team has performed tremendously for TriMet on four light rail extensions since 2004. Siemens has brought industry leading design and installation talent to each of our projects which have opened on time and under budget. Our most recent project, the 7.4 mile Orange Line extension to Milwaukie, Siemens installed TriMet's first Energy Storage Substation, capturing regenerative power from vehicle braking and putting that energy back into the traction powersystem."

Neil McFarlane
General Manager
TriMet

TriMet operates 56 Siemens DC substations and more than 100 track miles of Siemens OCS.

Siemens Solutions
TriMet selected the Mobility division of Siemens Industry to design, produce, and install rail electrification, signaling, and communications systems. Siemens brought the right expertise, technology, and stability needed to help TriMet build and grow the MAX Light Rail system.

Electrification technologies from Siemens power the entire line. They include fifty-six 0.75MW and 1MW, 750V DC traction power substations and an overhead contact system (OCS) spanning 100 miles of track.

For each project – beginning with the Blue Line in 1986 through the Orange Line launch in 2015 – Siemens has worked closely with TriMet to develop solutions meeting the specific needs of the agency and the community it serves. Some of the ways in which solutions have been tailored to meet the needs of Portland include:

- The development of modular substations where equipment is integrated and tested remotely and delivered to the job site as a complete unit, saving time and money in on-site commissioning
- For residential areas, Siemens integrated equipment into a more aesthetically pleasing, TriMet-designed substation housing, while more cost-efficient designs are used in other areas
- Siemens worked with TriMet to develop solutions to shorten timelines, when possible, to provide traction power ahead of schedule
- The tie-in of extension lines were scheduled to minimize disruptions to existing light rail service

Siemens solutions incorporated ingenuity and innovation to help TriMet generate cost savings and address challenges. For example, the 2015 Orange Line extension included the first use of regenerative energy storage in the United States. Energy generated during the braking of vehicles is converted into electricity and then stored to power the next trains on the line.

Presently, Siemens is working with TriMet on solutions that will extend the life of its infrastructure another 30 years. The goal of rail electrification modernization is to cost-effectively apply 21st century technologies while maintaining equipment that is in good working order and TriMet is comfortable using.

Client Results
Over the course of the 30-year relationship between TriMet and Siemens, the MAX Light Rail system has expanded from a single, 15-mile line to a six-line system with close to 100 stations serving all corners of the Portland metropolitan region.

With smart electrification technologies, the system has cost-effectively expanded to serve more than 130,000 riders on an average weekday. It is a light rail system that has been truly embraced by the local community and is one of the most travelled systems in the nation.

Together, Siemens and TriMet have created a successful working partnership that will help to maintain the popularity of light rail and support its use well into the future.

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