



# Zero-Emission Hydrogen Locomotive Pilot in West Sacramento

Sierra Northern Railway will be building and testing a new hydrogen fuel cell locomotive at the Port of West Sacramento that will demonstrate how hydrogen-fueled switching locomotives improve air quality, reduce greenhouse gas emissions, and increase the quality of life for surrounding communities.

The new zero-emission switching locomotive will use advanced hydrogen technology to replace a diesel locomotive. There are more than 260 switcher locomotives that operate in California—currently all powered by diesel.

This hydrogen switching locomotive will be the first of its kind and will feature hydrogen fuel cells, hydrogen storage, and battery and control technologies that are much more environmentally friendly than diesel. If proven successful, hydrogen switchers could revolutionize the locomotive industry.



## What is a switcher locomotive?

A switcher locomotive operates within rail yards and is used to assemble and disassemble trains short distances—similar to a tugboat. Because switchers stay in a small area, reducing switching locomotive emissions will immediately improve regional air quality and in the long term, reduce ozone levels.



## What will the impact be?

Once the new hydrogen-fueled switcher locomotive is completed, it is estimated to replace up to 10,000 gallons of conventional diesel fuel per year. The demonstration of hydrogen switcher will lead to improvements in air quality, as well as a reduction in greenhouse gas emissions, noise, and odor that will benefit the residents of West Sacramento, as well as the wildlife that surrounds the area.



## What is the project?

The purpose of this project is to convert an existing diesel locomotive into a zero-emission hydrogen-fueled locomotive. The project team will demonstrate and validate the hydrogen switcher technology which will establish a platform for widespread commercialization in the near future. The potential market for hydrogen locomotives in California includes more than 260 switcher locomotives.



## What is Valley Vision's role?

As part of this project, Valley Vision is conducting community outreach to determine how the new and cleaner locomotive will affect the surrounding area. As well, Valley Vision will analyze the data pertaining to diesel switchers and will determine if it would be feasible to convert the remaining diesel switchers in California to hydrogen.



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