

# Progress Rail

*A Caterpillar Company*

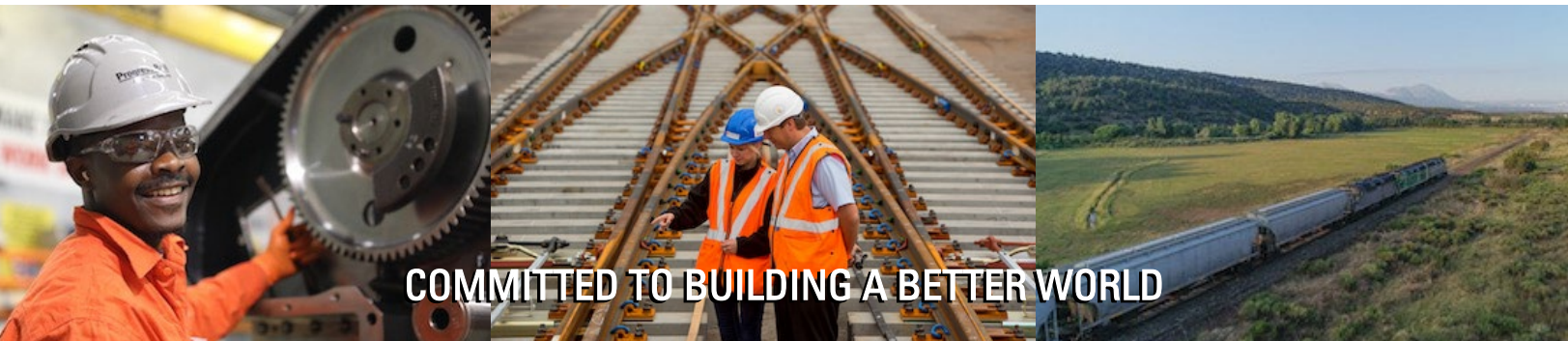


## COMMITMENT TO SUSTAINABILITY

Sustainability is part of who we are and what we do every single day. We recognize progress involves a balance of environmental stewardship, social responsibility and economic growth. We consider this as we work toward a vision of a world in which people's basic needs – such as shelter, clean water, education and reliable energy – are fulfilled.

## SUSTAINABILITY PRINCIPLES IN MANUFACTURING PROCESSES

- Preventing Waste
- Improving Quality
- Developing Better Systems



**COMMITTED TO BUILDING A BETTER WORLD**

## PROGRESS RAIL CHAMPIONS IMPROVEMENT IN THE RAILWAY SUSTAINABILITY LIFECYCLE

- Rebuild, overhaul and repower locomotive options
- Modernization programs upgrade electrical and mechanical systems to extend the life of a locomotive by 10+ years
- Upgrades bring engines to current or beyond emissions standards, improve reliability and maximize fuel economy
- Reconditioning or repair services for freight cars and a wide range of components
- End-of-life locomotives and railcars can be recycled for other uses through Progress Rail's scrap management services
- Grade recycled rail – or "relay rail" – and other track material to meticulous industry standards

## POSITIVE ENVIRONMENTAL IMPACT OF REPOWERED LOCOMOTIVES

- New Locomotive
  - Requires ~100 tons of steel, producing 177 tons of CO<sub>2</sub>
- 710ECO™ Repower Locomotive
  - Requires only 18 tons of steel, producing only 31.86 tons of CO<sub>2</sub>



## PROGRESS RAIL CURRENT TECHNOLOGY LEADERSHIP

- EPA Tier 4 Diesel Locomotive
- EGR and SCR Technologies
- Tier 4 Locomotive Repowers
- Lithium-Ion Battery Locomotives
- TALOS™ Train Automation
- Machine Learning applied to all controllers
- Energy Recovery & Fuel Savings
- Energy Optimization
- Zero Idle Solution (LiON)
- Inverter Driven Cooling Fans
- PR Uptime™ Suite
- Biofuels + Renewable Diesel

## PROGRESS RAIL CUSTOMER SUCCESS STORIES

### Norfolk Southern, Chicago & Atlanta

- Progress Rail has repowered 50 NS locomotives since 2008
- Lower Emissions
- Fuel Savings
- Operating Efficiencies
- Each 710ECO™ unit can replace two older, less-efficient locomotives

### South American Mining Company, Vale

- EMD® Joule Battery Electric Locomotive
- Zero-Emission
- 3000 HP Battery Locomotive
- 120-ton Locomotive
- Currently pulling 9,000-ton trains
- 3-5 trains a day recharging every other day
- Super-silent cab
- Testing complete and locomotive is operating in revenue service

### Pacific Harbor Line, California

- New EMD® Joule battery electric locomotive for a demonstration project operating in the ports of Los Angeles and Long Beach California
- This six-axle locomotive will feature the latest lithium-ion battery technology and battery management system, including AC traction and state-of-the-art electronics
- The zero-emission, zero-idle and low-noise EMD® Joule locomotive is capable of 3,200 horsepower in this application and will be rigorously tested in all types of service at Pacific Harbor Line

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