



U.S. EPA Goals for Transportation Decarbonization

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On Track for Decarbonization Workshop

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EPA is Working to Tackle the Climate Crisis

- **Two New Strategic Goals**
 - 1) Tackle the Climate Crisis
 - 2) Take Decisive Action to Advance Environmental Justice and Civil Rights
- **Historic Levels of Climate & Environmental Justice Investment**
 - Infrastructure Investment and Jobs Act (Bipartisan Infrastructure Law)
 - Inflation Reduction Act



EPA's Nexus with Rail

EPA sets standards for new locomotives with regulatory authority from the Clean Air Act.

- New locomotives must meet the current “Tier 4” emissions standards.
- Improvements from Tier 2 to Tier 4:
 - 90% reduction in PM emissions
 - 80% reduction in NOx emissions
- EPA also supports emission reduction in rail through grants, partnership programs, and technical assistance.



Office of Transportation and Air Quality
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Locomotives: Exhaust Emission Standards

	Duty-Cycle ^b	Tier	Year ^c	HC ^l (g/hp-hr)	NOx (g/bhp-hr)	PM (g/bhp-hr)	CO (g/bhp-hr)	Smoke (percentage) ^m	Minimum Useful Life (hours / years / miles) ⁿ	Warranty Period (hours / years / miles) ⁿ
Federal ^a	Line-haul	Tier 0	1973-1992 ^{d, e}	1.00	9.5 [ABT]	0.22 [ABT]	5.0	30 / 40 / 50	(7.5 x hp) / 10 / 750,000 ^o	1/3 * Useful Life
		Tier 1	1993-2004 ^{d, e}	0.55	7.4 [ABT]	0.22 [ABT]	2.2	25 / 40 / 50	(7.5 x hp) / 10 / 750,000 ^o (7.5 x hp) / 10 / -	
		Tier 2	2005-2011 ^d	0.30	5.5 [ABT]	0.10 ^k [ABT]	1.5	20 / 40 / 50	(7.5 x hp) / 10 / -	
		Tier 3	2012-2014 ^f	0.30	5.5 [ABT]	0.10 [ABT]	1.5	20 / 40 / 50	(7.5 x hp) / 10 / -	
		Tier 4	2015+ ^g	0.14	1.3 [ABT]	0.03 [ABT]	1.5	-	(7.5 x hp) / 10 / -	
	Switch	Tier 0	1973-2001	2.10	11.8 [ABT]	0.26 [ABT]	8.0	30 / 40 / 50	(7.5 x hp) / 10 / 750,000 ^o	
		Tier 1	2002-2004 ^h	1.20	11.0 [ABT]	0.26 [ABT]	2.5	25 / 40 / 50	(7.5 x hp) / 10 / -	
		Tier 2	2005-2010 ^h	0.60	8.1 [ABT]	0.13 ^l [ABT]	2.4	20 / 40 / 50	(7.5 x hp) / 10 / -	
		Tier 3	2011-2014	0.60	5.0 [ABT]	0.10 [ABT]	2.4	20 / 40 / 50	(7.5 x hp) / 10 / -	
		Tier 4	2015+ ^j	0.14 ^j	1.3 ^j [ABT]	0.03 [ABT]	2.4	-	(7.5 x hp) / 10 / -	

Decarbonization through the Inflation Reduction Act (IRA)



Goals of IRA at EPA

- Tackle climate pollution
- Advance environmental justice
- Deliver cleaner air



IRA Appropriations to EPA

- Expected to reduce U.S. greenhouse gas emissions 40% by 2030
- Will support disadvantaged communities and clean energy
- Will drive the most significant emissions reductions in electricity generation and transportation
- Will lay groundwork for long-term decarbonization in industry, buildings, and agriculture

IRA Appropriations to EPA

- \$41.5 billion has been appropriated to support 24 new and existing EPA programs
 - 6 new EPA programs account for 98% of funding:

Program	Funding
Greenhouse Gas Reduction Fund	\$27 billion
Climate Pollution Reduction Grants	\$5 billion
Environmental and Climate Justice Block Grants	\$3 billion
★ Grants to Reduce Air Pollution at Ports ★	\$3 billion
Methane Emissions Reduction Program	\$1.55 billion
Clean Heavy-Duty Vehicles	\$1 billion

Decarbonization through the Diesel Emissions Reduction Act (DERA)



About the DERA Program

- DERA funds grants and rebates that protect human health and improve air quality by reducing harmful emissions from diesel engines.
- Our grant program gives priority for railyard and other goods movement projects.



DERA and Rail

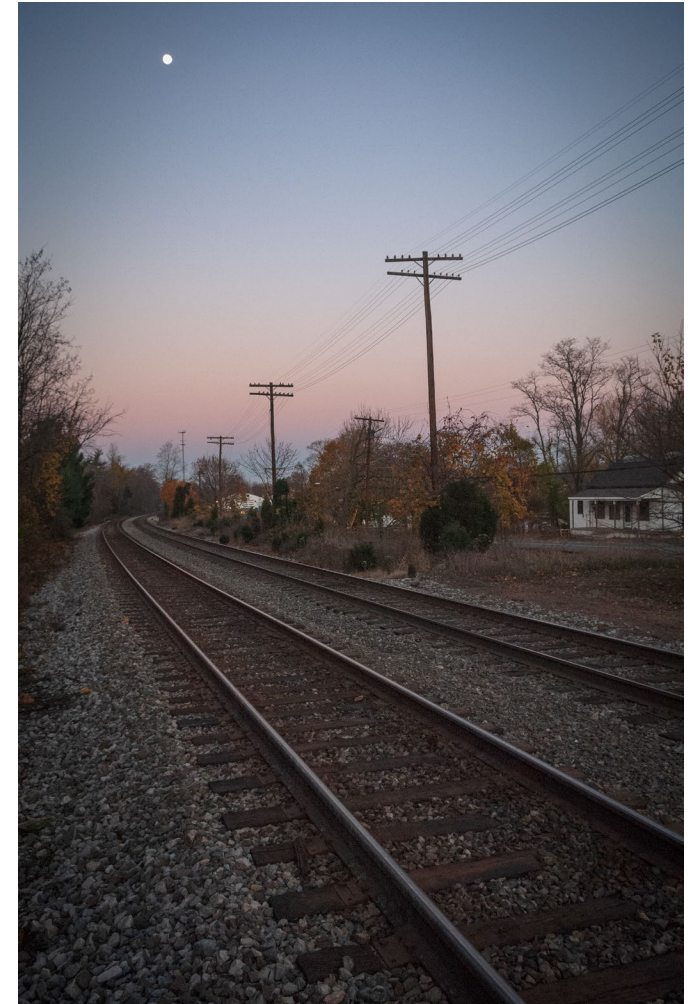
- EPA funds locomotive upgrades and idle reduction technologies beyond what is required by law.
- EPA funded 130 grants with locomotive components, upgrading or replacing over 500 individual locomotives.
- Some recent DERA projects in rail:
 - Installing Auxiliary Power Units to reduce idling,
 - Replacing a Tier 0+ diesel engine on a switch locomotive with battery electric technology, and
 - Replacing railroad terminal tractors with battery electric tractors

Decarbonization in transportation through SmartWay



About SmartWay

- A voluntary partnership program that helps companies and organizations advance the sustainability of freight transportation
- It also:
 - verifies technology to help save fuel and reduce emissions,
 - designates tractors that can reduce fuel use by up to 20%
 - engages with global collaborations to coordinate freight sustainability



Benefits of SmartWay partnership

- Technical assistance from EPA subject matter experts
- Measurement of your company's environmental performance and improvements year over year
- Use of SmartWay logo and branding
- Opportunities for recognition and awards
- Best effective strategies shared between peers
- Fuel cost savings and reduction of greenhouse gas emissions

SmartWay affiliates

- Companies and organizations that do not ship goods directly but want to support freight supply chain sustainability can join SmartWay as an affiliate.
- Affiliates encourage carriers, shippers, and logistics companies to participate in our SmartWay partnership program.
- FRA is a SmartWay affiliate.

All that and so much more

- U.S. National Blueprint for Transportation Decarbonization, signed Sept. 2022
 - A multi-agency strategy
- EPA Ports Initiative
 - Collaboration with the port industry, communities, and all levels of government to improve environmental performance and increase prosperity in ports and railyards
- Other voluntary programs for decarbonization →



Thank you

