



# Locomotive Idle Reduction Projects

New England Railroad Club

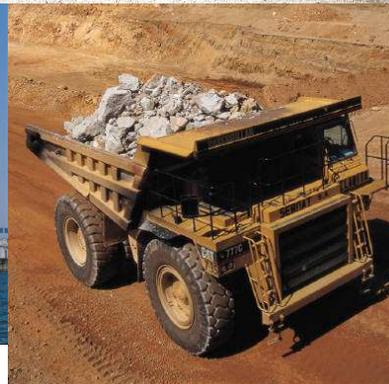
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# Idle Reduction



# Fuel Consumed (gph) at Idle

<u>Locomotive Model</u>	<u>Idle</u>	<u>Notch 3</u>
SW12/SW15	3.8	9
GP7/GP9	3.7	8
GP38-2/SD38-2	4.5	11
GP40-2/SD40-2	5.1	11

# Why Idle?

- Avoid difficult start-ups
  - Cold engine ( $T < 100\text{F}$ )
  - Weak batteries
- Ready for immediate service
- Freeze Protection – no antifreeze
  - Must keep engine  $> 32\text{F}$

# Idle Reduction Technologies

- Shore power systems
- Stand-alone systems
- Automatic start-stop systems

# Shore Power Solution



# Stand-Alone Solution

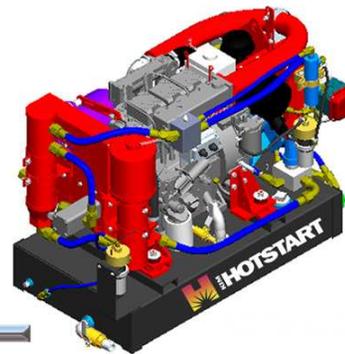


# Stand-Alone Solution



# Auto Start/Stop + Stand-Alone

- Autoshutdown of locomotive
- Autorestart of locomotive
- Maintains brake pressure
- Fuel savings reports
- Fail safe redundancy



# EPA Project #1

Retrofit on BNSF 2133, GP38 in Chicago



# EPA Project #1 Results

(BNSF 2133)

- Retrofit with Hotstart-SmartStart combination
- Idle Time Reduced 80%
- Fuel Savings per year = 14,339 gallons
- NOx reduced per year = 2.4 tons
- PM reduced per year = 0.07 tons
- Noise pollution reduced 8-15 decibels
- Cost to reduce 1 ton of NOx just \$1,420

# EPA Project #2

Retrofits on GP38-2, GP39E, SD39-2 in Vancouver



# EPA Project #2 Results

(Average of 3 locomotives)

- Retrofit with Hotstart-SmartStart combination
- Idle Time Reduced \_\_\_\_\_%
- Fuel Savings per year = 15,910 gallons
- NOx + PM reduced per year = 3 tons
- All pollutants reduced per year = 5 tons
- Cost to reduce 1 ton of NOx + PM = \$1,340

We're Here to Help!

