



**RAILPOWER**  
Technologies Corp.

# FFCA 2006

## Hybrid Locomotives: *Better Economics, Better Environment*

January 31<sup>st</sup>, 2006

*Better Economics, Better Environment*



**RAILPOWER**  
Technologies Corp.

## Company Overview

- Publicly traded on Toronto Stock Exchange.
- Strong worldwide investor interest.
- \$60MM in Equity for Product Development and Growth.
- Over \$200 MM market capitalization.
- Experienced leadership with over 700 years collective experience.

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**Start with This.....**

**GP 9 core locomotive**

- Complete teardown and overhaul
- Replacement with new components




**End with This.....**

**GG20B**

1 diesel engine  
+  
Battery Pack  
=  
~2000 HP  
(equivalent)

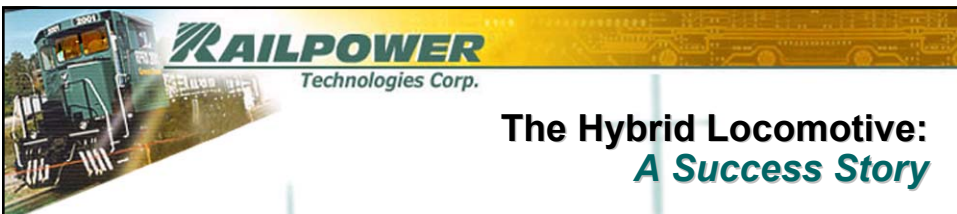




## Green Goat Operator Comments

- “Quiet and good visibility.”
- “Loads up quickly. Stops good too.”
- “This unit kicks \$%^&\*!”
- “Gets up to 10 mph very quickly.”
- “I like its pulling power.”
- “I don’t think our yard engine would have done that.”

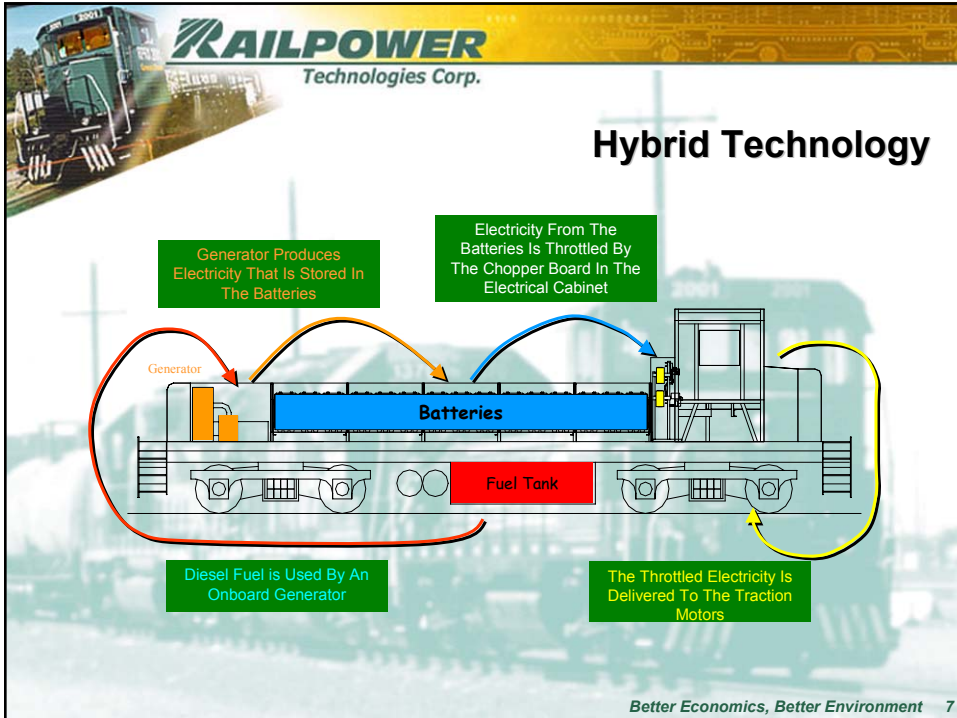
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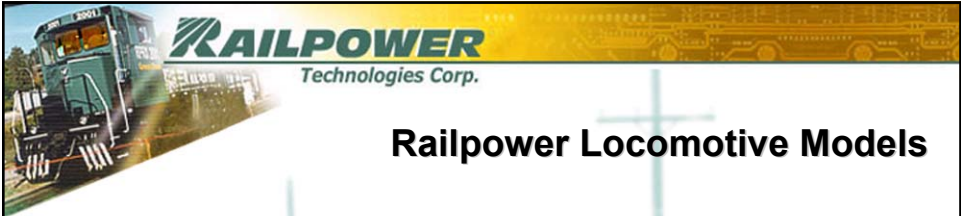
## The Hybrid Locomotive: A Success Story

- Performance
  - Increased Tractive Effort.
  - Out performed GP-9, 2 SW-1200s, pulled 8,000 trailing tons
- Low operating Cost
  - Fuel savings 40 – 60 % on average.
- Low emissions and noise
  - PM and NOx Emissions drastically reduced 70% to 90%.
  - No idle = no noise, no fuel, no emissions
- SAFER operation due to increased visibility

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- ## Product Development History
- Early 2002, prototype Green Goat GG20B completed
  - Late 2004, first production unit in service at CSX in Jacksonville, FL
  - March 2006, first RP20BD unit built
  - April 2006, first RP20BH unit built
  - February 2006, EPA Part 92 Certifications for RP20 prototypes
  - More than 160 Locomotives on order, over 30 Delivered
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## Railpower Locomotive Models

<u>Model</u>	<u>HP</u>	<u>Service</u>	<u>Engines/HP</u>
GG20B	2,000	Yard	1 @ 290 + Battery
RP20BH	2,000	Local / Yard	2 @ 1300 + Battery
RP20BD	2,000	Local / Yard	3 @ 2000 (Battery)



## Road Switchers (switch + local)

### RP20BH

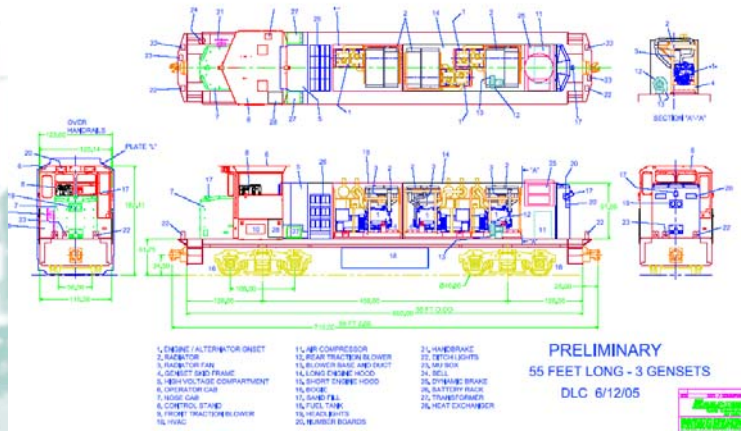
- > 2 Engines
- > >35% fuel savings
- > >75% of GP38 Duty Cycles
- > Batteries supply power to traction motors

### RP20BD

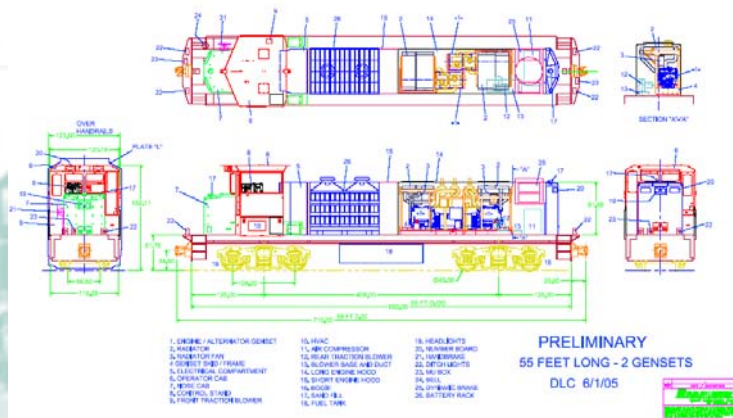
- > 3 Engines
- > ~ 25% fuel savings
- > 100% of GP38 Duty Cycles
- > Batteries do not power traction motors

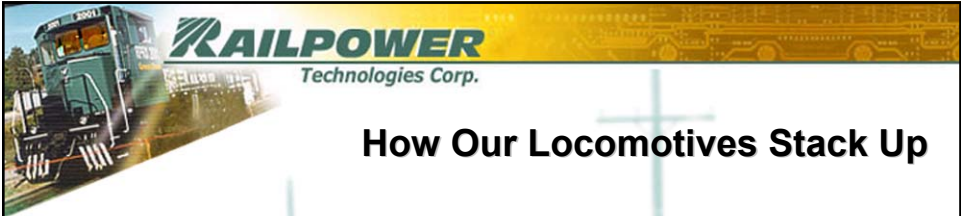


### 3 Engine Road Switcher RP20BD



### 2 Engine Road Switcher: RP20BH

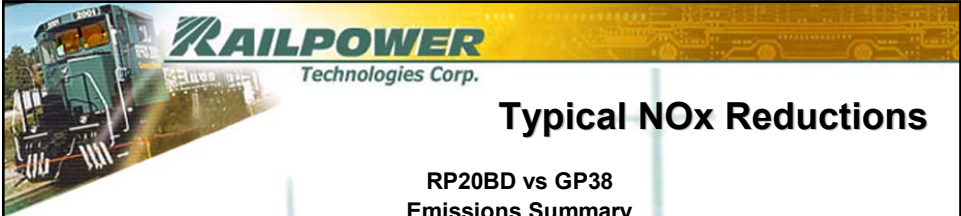




# How Our Locomotives Stack Up

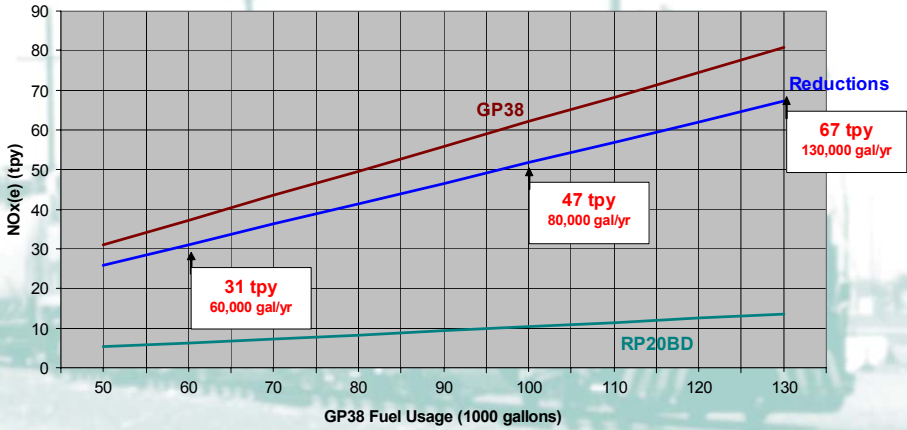
	Price	NOx	NMHC	PM	Basis
	US Dollars	g/bhp-hr			
GG20B	\$925,000	2.85	0.15	0.15	Tier 3 non-road CI engine certification standard ("future proof" Tier 4 available, DPFs)
RP20BH	\$960,000 **	2.85	0.15	0.15	Tier 3 non-road CI engine certification standard ("future proof" Tier 4 available, DPFs)
RP20BD	\$960,000**	2.85	0.15	0.15	Tier 3 non-road CI engine certification standard ("future proof" Tier 4 available, DPFs)
New Tier 2 Switcher	\$1,300,000	8.1	0.60	0.24	Tier 2 Switcher locomotive certification standard
<b>Uncontrolled Switcher</b> Pre 1973 locomotives and Pre 2001 locomotives not remanufactured	\$250,000	17.4	1.00	0.44	EPA uncontrolled emission factors

\*\* Assumes customer supplies core to Railpower for \$50K

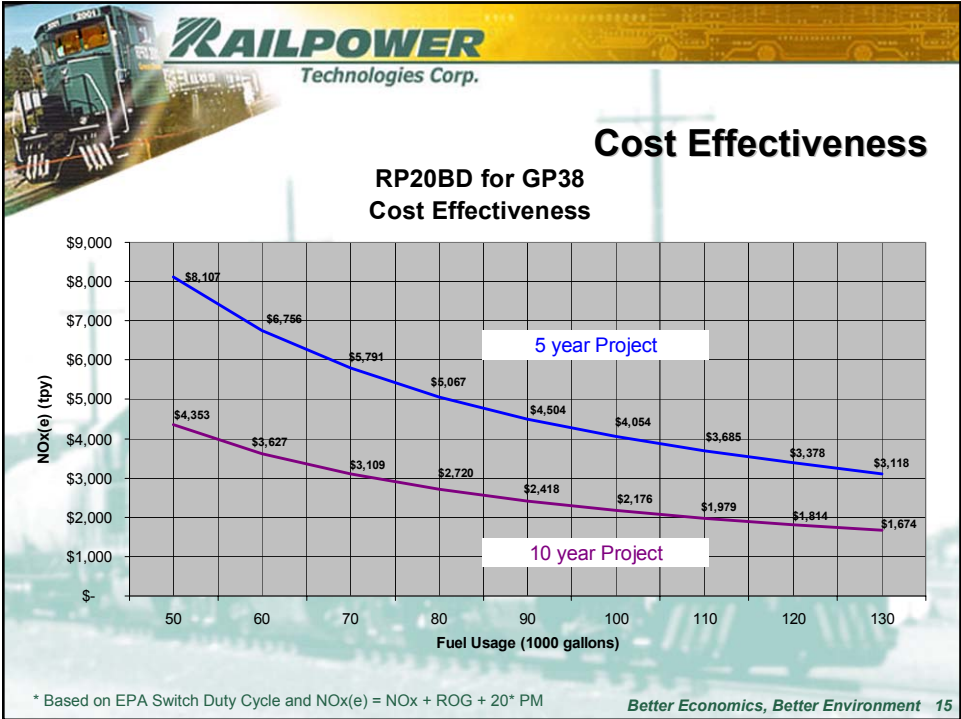


# Typical NOx Reductions

RP20BD vs GP38  
Emissions Summary



\* Based on EPA Switch Duty Cycle and  $NOx(e) = NOx + ROG + 20 \cdot PM$



## Railpower Technology – Bottom Line

- Drastically reduced emissions: 25 to 67 tpy of NOx(e), RP20BD
- Cost Effective NOx(e) Reductions: \$<5K/ton reduced over 5 yrs
- Better performance
- Lower maintenance costs
- Higher locomotive availability
- Lower fuel costs

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## Funding Opportunities

- California—Carl Moyer ~\$140MM/yr beginning in 2006
- Texas—TERP ~\$180MM/yr
- Federal Ozone Non-attainment Areas—CMAQ
- EPA Supplemental Environmental Project Money
- >\$10MM *Authorized* under the EPACT 2005

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## Contact Information

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