US Railcar Company

Strength of US Railcar

US Railcar Company

- Ohio-based, U.S. owned
- Proven railcar designs ready to build
- Key management staff with railcar mfg experience
- Network of federal, state and local rail leaders
- Understands the transportation processes
- Value Recovery Group, Majority owner of USR:
  - GSA certified
  - Serves Federal and State Agencies
    - Dept of Energy, Dept of Ed, EX-IM
    - Ohio Attorney General
    - Ohio Air Quality Dev Authority
  - Expertise in public-private-partnerships
  - Brownfield remediation
  - Financial management
  - Technical, scientific evaluation

The Solution for Economical Quick Start Service

Quick Facts

- One third of the cost of High Speed Rail and much faster to implement
- Uses shared freight rails without temporal separation or waivers.
- 110 mph operation - higher speeds in planning
- PRIIA Intercity and High Speed Funding
- Economical from 70 seats to 330+ seats
- Flexible operation for capacity versus frequency – right-sizing at a moment's notice
- Is interoperable with existing coaches and locomotives.
- Intercity, commuter or feeder service

The Solution for Economical Quick Start Service

Quick Facts

- Lowest lifetime cost of ownership
  - Lower cost per seat
  - Lower infrastructure cost
  - Lower maintenance cost
  - Annual fuel savings
- EPA Tier 4 truck engines - the greenest option
- Quieter operation inside and out
- Modern, proven technology, currently in service in 3 States
- US made by an American-owned company highest US content available
- Single and bi-level versions
- Appealing interiors and options for both commuter and intercity service

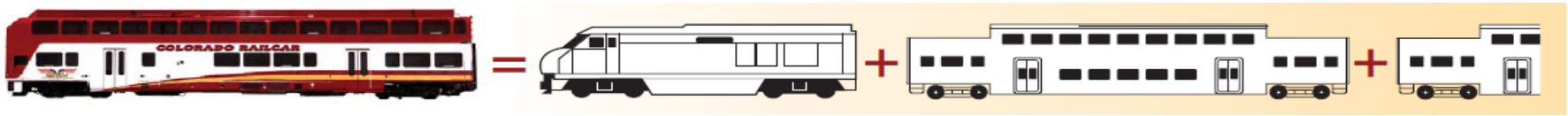
Why DMUs Save

- Superior economics compared to locomotive:
  - Lower purchase cost per passenger seat
  - Requires less infrastructure
    - no new rails, no electrification, smaller yards, shorter platforms
- Lower operating cost (35% lower fuel & maintenance costs)
- Cleaner (72% less pollution)
- Quieter (75% less noise)

Why DMUs Save

Lower Capital Cost

A typical locomotive is over-powered, weighs 268K pounds, and costs $4-5 million. It has NO seating. The locomotive has to pull several cars before its per seat cost is similar to the US Railcar DMU. Below is a comparison of what it would take for a locomotive-hauled consist to equate to US Railcar's double deck DMU.



Locomotive – DMU Compared

	Locomotive	DMU Single	DMU Bi-Level
HP/Ton	12.65	10.32	6.1
Seats	279	240	330
Fuel Use	2.8 GPM	2 GPM	1.9 GPM
1 way	728 gal	573 gal	573 gal
Cost Set	$10.4 Million	$12.5 million	$12.5 million
Cost/Seat	$37,500	$52,000.00	$37,800.00
Length (feet)	238	255	170

- Of course the DMU offers the rider a better experience, more open and great windows that helps to build ridership. Maintenance and fuel are less. Flexibility of making a right-size consist, the reliability of redundant and distributed power all favor the DMU, but are difficult to quantify but would justify a higher per seat cost. DMUs are a great value.

Why DMUs Save

The Tri-Rail Fuel Test

To quantify fuel savings, Florida's Tri-Rail compared the fuel usage of two "seat equivalent" consists over a 144 mile round trip between Miami & West Palm Beach.

Consist 1 DMU pulling 2 coaches. Result: **1 gallon/mile**

Locomotive pulled. Result **2.3 gallons/mile**

- The DMU saved ~ 200 gallons of fuel / trip
- Annual fuel savings - 50,000 gallons
- 3 daily round trips 5 days/week - Diesel at $3.70
- The DMU pays for itself in less than 10 years compared to a locomotive hauled consist.
- USR's DMU will save 4.5 million gallons of fuel during its thirty years service life.

Why DMUs Save

Infrastructure Costs

- Light rail or non-FRA crash compliant vehicles cannot share existing freight rails without temporal separation agreements. New track and right of way can cost $2-8 million per mile HSR Track cost much more. Electrification can add $3-5 million per mile.
- Using existing freight rail will have costs for track upgrades, signaling, crossings and passing sidings, but these are less than half the cost of new track.
- DMU consists are shorter in length, especially the bi-level. This means that boarding platforms can be shorter, and there will be less land and yard track needed.

Why DMUs Save

Maintenance Costs

- Smaller and less complex maintenance facilities
  - Having a locomotive from one manufacturer and coach cars from another
  - No commonality of parts like a DMU.
  - 2 distinct sets of parts inventory and special tools.
- Powered or unpowered, DMUs share
  - The same frame, trucks, windows, interiors, controls, etc… Propulsion components are much easier to service and cost less than a locomotive. Engine and transmission maintenance can be outsourced to companies who service highway trucks.

Why DMUs Save

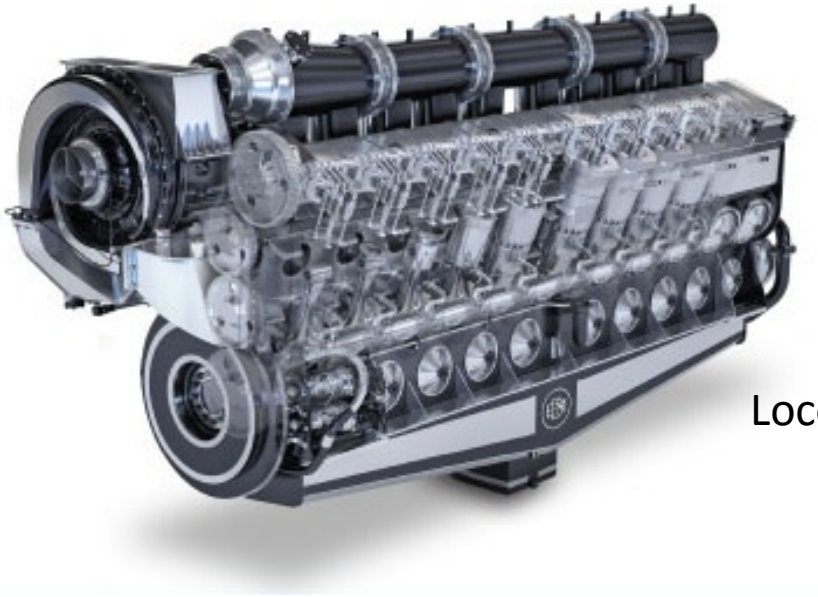
Save more? Go Bi-level

- The bi-level cost 60% more than a single level DMU yet it
- Carries twice the passengers as single level
- Less fuel per passenger mile
- At 19’6” tall it provide a third more seating typical bi-level coaches
- And more comfort!
- How to chose?
  - If your track can handle double stacked freight, consider the bi-level.
  - If speed is your preference, a single level consist with at least 2 power cars is the better choice.

Environmental Benefits

Quieter Inside and Out

- Have you ever stood 100 ft from the track as a 3600 hp locomotive engine roars by under load? It's a deafening 90+ db. The DMU is 74 db and will not disturb a normal conversation. Even at 70 mph, the DMU interior is pleasantly quiet in the low 70 db range.
- For more on the Locomotive-DMU comparison, request the following document: "Economics of FRA-Compliant Diesel Multiple Units – DMUs"



Loco versus DMU

Unique DMU Environmental Benefits

- EPA Tier 3 or 4 rail-proven truck engines - a GREEN solution.
- Engines are more efficient. No need to idle. Use less fuel
- Distributed Power provides better acceleration & reduced trip times with less HP.
- Multiple Unit (MU) Configuration reduces the number of empty seats moved during midday and off-peak periods to be right-sized at a moment's notice saving fuel

Why DMUs Save

DMUs Complement High Speed Rail (HRS)

- Quick start, helps build ridership at lower cost
  - Equipment costs and dedicated class 9 track escalate the cost of HRS exponentially over the cost of DMUs which operate well on shared freight track.
- Delivers most of the benefits of passenger service for 1/3 the cost.
- Often trip times can be similar depending on the line
- Use where appropriate
- Repurpose on feeder lines when it is time for HSR

A rough calculation on the Florida high speed line with multiple stops showed that the trip time difference was only 9 minutes with a top speed of 90 mph versus 165 mph.

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- Understands the transportation processes

"I am sold on them."

- *John Mica T&I committee meeting, Columbus, Ohio, Feb 2011*

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