

Role of Natural Gas in Goods Movement



Michael Eaves
FFCA 2006 Conference
Long Beach
February 1, 2006



CALIFORNIA NATURAL GAS VEHICLE PARTNERSHIP



California
Natural Gas Vehicle
Coalition

Why Natural Gas?

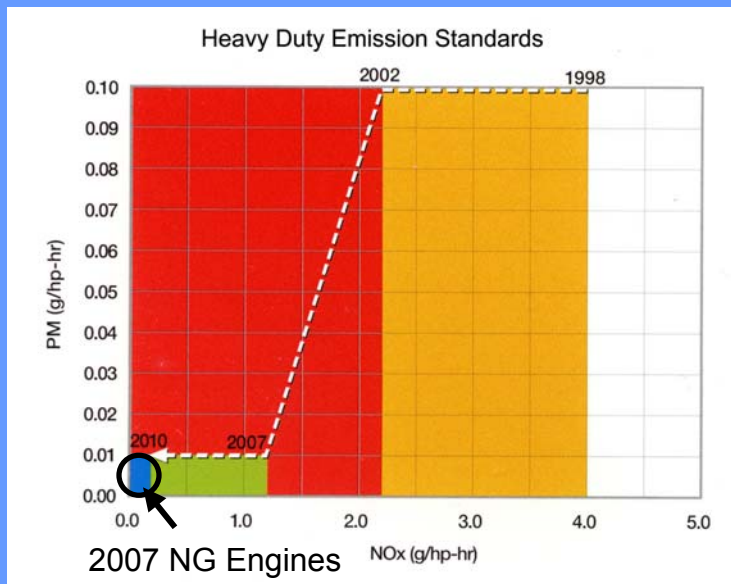
- Cleanest fossil fuel
 - Low NOX and PM
 - Since 2003 has achieved 2010 PM emissions
 - 2007 engines slated to achieve 2010 emissions
- Compressed (CNG) and liquefied (LNG)
 - Don't need a LNG terminal to have LNG
- Petroleum Reduction/Petroleum Diversity
- Quiet
- Economics



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Infrastructure

- Ports are good applications for “return to base” fleets
 - MTA transit buses travel 400 mile routes on CNG
 - and fuel once per day
 - LNG offers greater range with reduced space for fuel storage
- In many potential applications for natural gas
 - vehicles never leave port areas
- Trucks to inland rail yards can be serviced by fuel stations on each end



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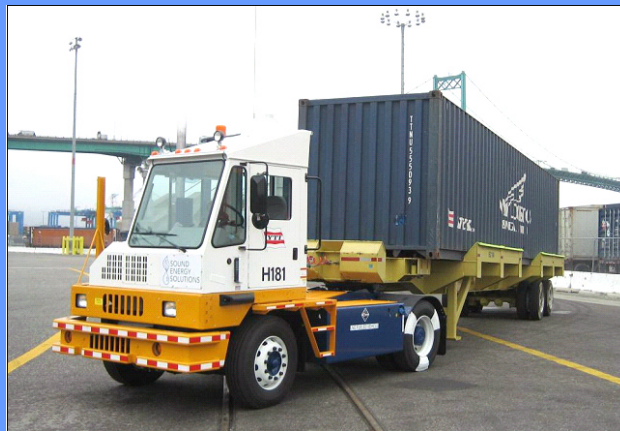
Product Availability

- Engines are available today
- Other engines are on the drawing board
- Market pull through aggressive California port initiatives will assure product availability



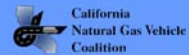
Applications for LNG

- Yard tractors



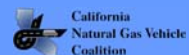
Applications for LNG

- Switch engines



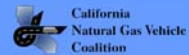
Applications for LNG

- Container lifts and other mobile



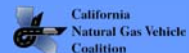
Applications for LNG

- On-road trucks



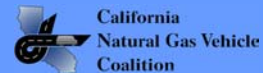
Applications for LNG

- Line Locomotives

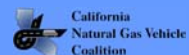
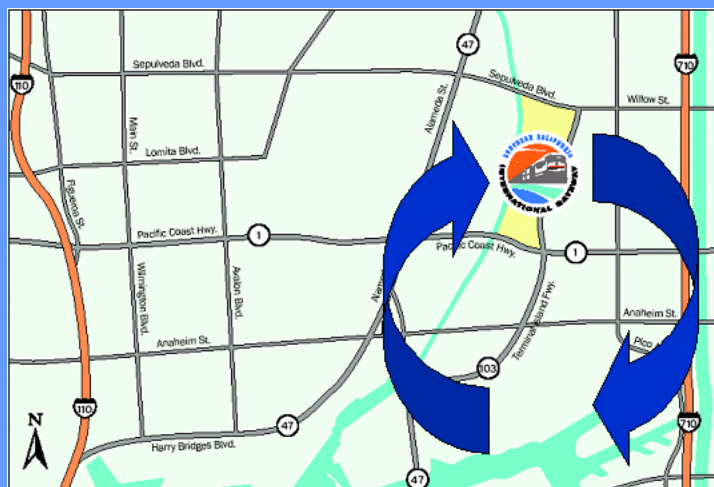


Applications for LNG

- Yard tractors
- Switch engines
- Yard forklifts and other mobile
- Stationary engines
- On-road trucks
- Line locomotives

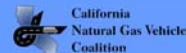


How to Apply??



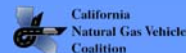
Proposed BNSF Near Dock Facility

- LNG yard tractors
- LNG switcher locomotives
- Electric RTG gantry cranes
- Trucks to get containers to rail yard??????



Trick is how to do more

- Redefine “business as usual”
- Consider shifting from owner/operator trucking to dock owned trucking
- Reduce emissions by having drivers make commute to docks in cars vs old trucks
- Clean container delivery trucks and new rail facility can be WIN – WIN for all



Win – Win - Win

- Serve BNSF facility with a captive, dedicated LNG fleet
- Provides ports with an easiest means to introduce clean HD trucks into port operations requiring the least number of trucks
- Addresses community concerns by providing for a clean fuel fleet to the rail facility
- Allows BNSF project to move forward
- Sets an example for clean fuel freight movement
- Clean air from trucking operations on top of clean air benefits of intermodal rail
- Eliminates truck commute emissions

