

Domestic LNG fuel usage in North America

**Synergy with Export?** 

**Paul Blomerus** 

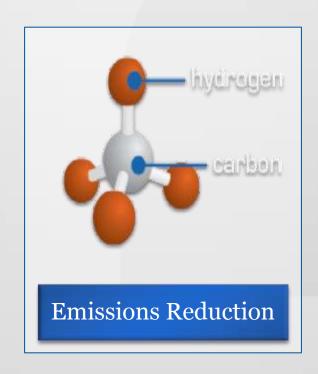
stock symbols		market capitalization	
TSX	nasdaq	CAD	USD
WPT	WPRT	~\$400M	~\$400M

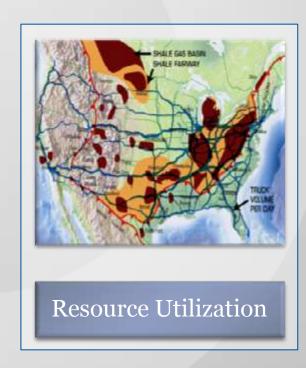
# Over 1,000 LNG-fuelled trucks on the road in North America already



# Why use LNG as a fuel?

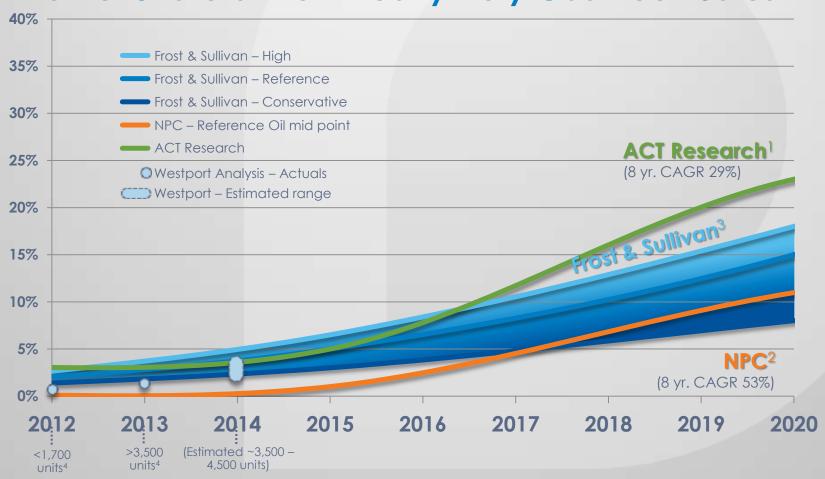






# Penetration of truck market by natural gas fuel beginning to accelerate

#### Market Share of New Heavy Duty Gas Truck Sales





2. NPC Advancing Technology, Reference

# Westport products enabling the growth



PETERBILT					
320	382	384	365		

Cummins Westport ISX12G Engine



iCE PACK LNG fuel supply system

#### **NAVISTAR**

TranStar



#### **FREIGHTLINER**

M2-112 SD-114 Cascadia







#### MACK

Granite



#### VOLVO

VNM VNL





# Significant Off Road Opportunities

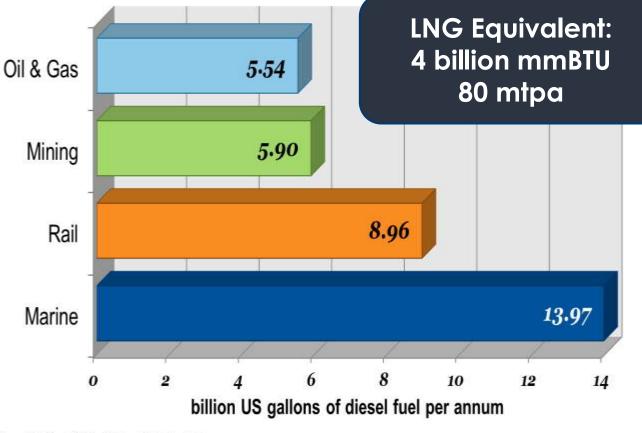












Source: UN Energy Statistics Database, Westport analysis

# Westport experience in off road LNG







### LNG Fuelled Mine Truck



Working with Caterpillar to implement Westport HPDI technology on large mine trucks up to 400 ton capacity

### LNG Tenders and Locomotives





- » Four LNG fuel tenders delivered to Canadian National (CN) Railroad
- » Locomotive engine under development with EMD

# LNG Tug Concept





- » LNG-fuelled 80 tonne bollard pull terminal tug with escort capability
- » Ideal for LNG export or import terminals

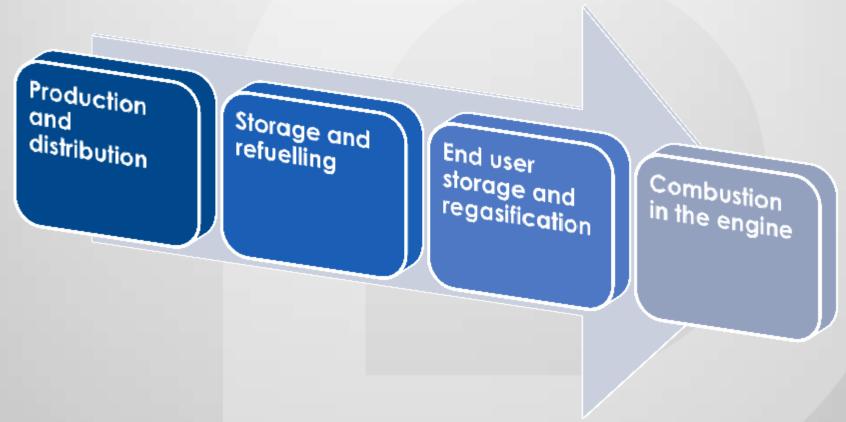
### Transitions to new fuels can be fast

#### Rise of Diesel Powered Locomotives, North America



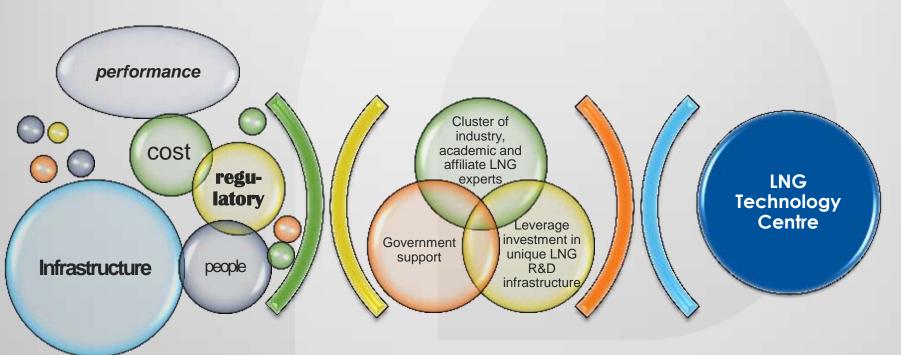
Harrisonburg, Virginia, 1947 NMAH, Transportation Collections, McBride photos

# Everything needs to be in place for rapid market growth



» Any issues in the LNG value chain will slow the adoption of new fuel

# How to overcome LNG industry issues?



Unresolved issues limiting growth of the LNG industry

can be addressed in a faster, more cost-effective and efficient way via a consortium,

the LNG Technology Centre.
The result is a more rapid,
sustained and broader
market adoption of LNG, LNG
technologies and LNGfuelled equipment.

# LNG Technology Centre Partners

- » Fuel providers
- » Equipment manufacturers and supply chain
- » Vehicle and engine OEMs
- » Universities and research Labs
- » End customers
- » Industry associations
- » Regulators
- » Investors

### How does it work?



# Headquarters in Vancouver Canada



# LNG: balanced economic growth fuel for Canada

#### **LNG Export Industry**

- Tax revenue
- Investment \$
- Construction and operation jobs
- Pollution and GHG reduction in Asia
- Carbon tax / technology fund



#### **LNG Technology Centre**

- Fuel cost savings
- GHG reductions for Canada
- Manufacturing and technology industry
- High-tech jobs
- Skilled personnel
- Investment opportunities