KwikTrip NATURAL GAS

Kwik Trip History

- May 1965, first store opened in Eau Claire
- Currently over 400 locations

Kwik Trip Today

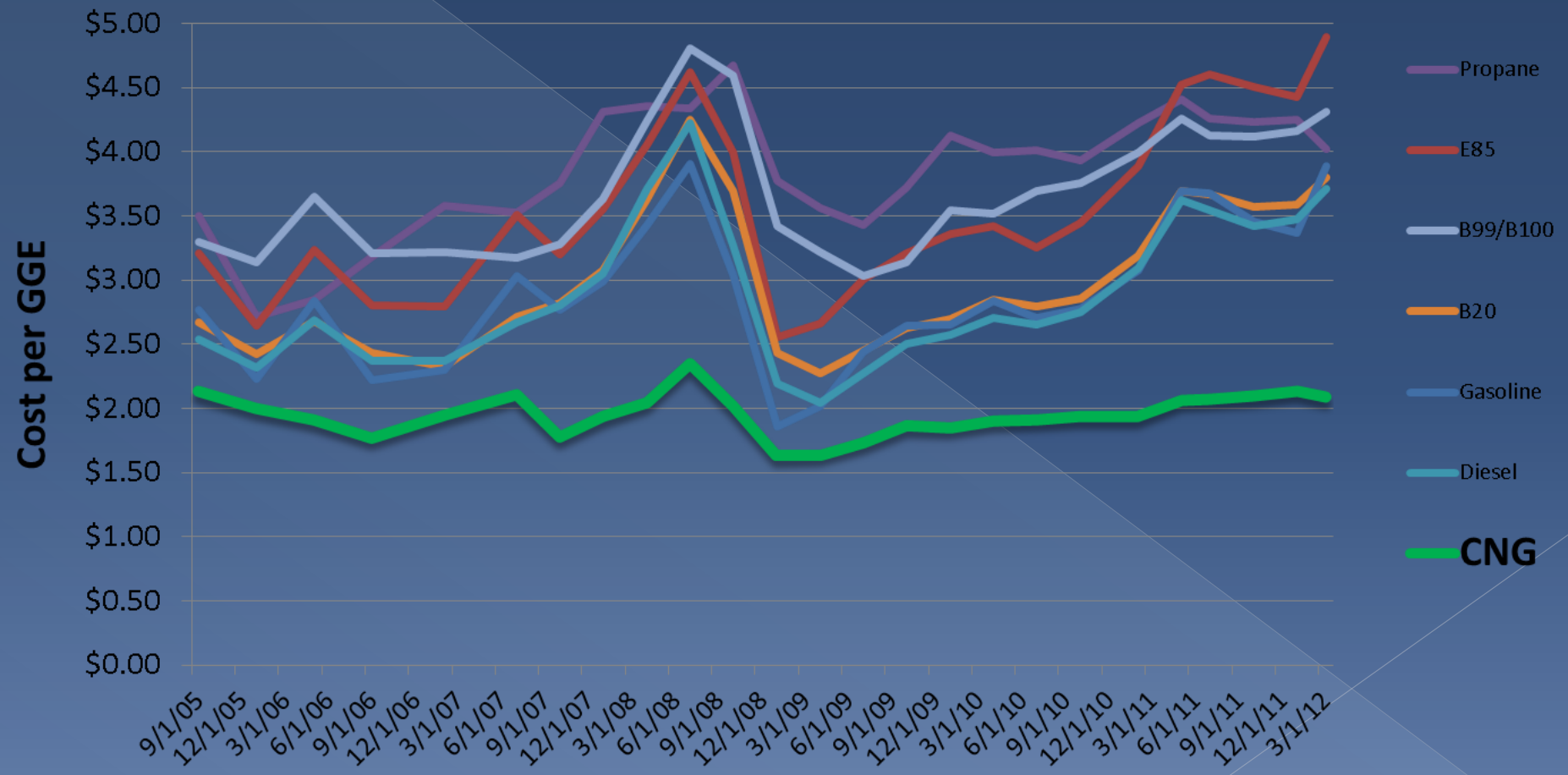
- Conventional Petroleum Products
  - Over 100 stores with Side Diesel Canopies
- Alternative Fuels : E-85, CNG, LNG, Propane, Bio Diesel
- EV Charging Station Deployment
- Vertically Integrated
  - Food Production, Transportation, Construction, R&M Services, and Logistics
  - Produce or handle 80% of the items sold in our stores

Natural Gas

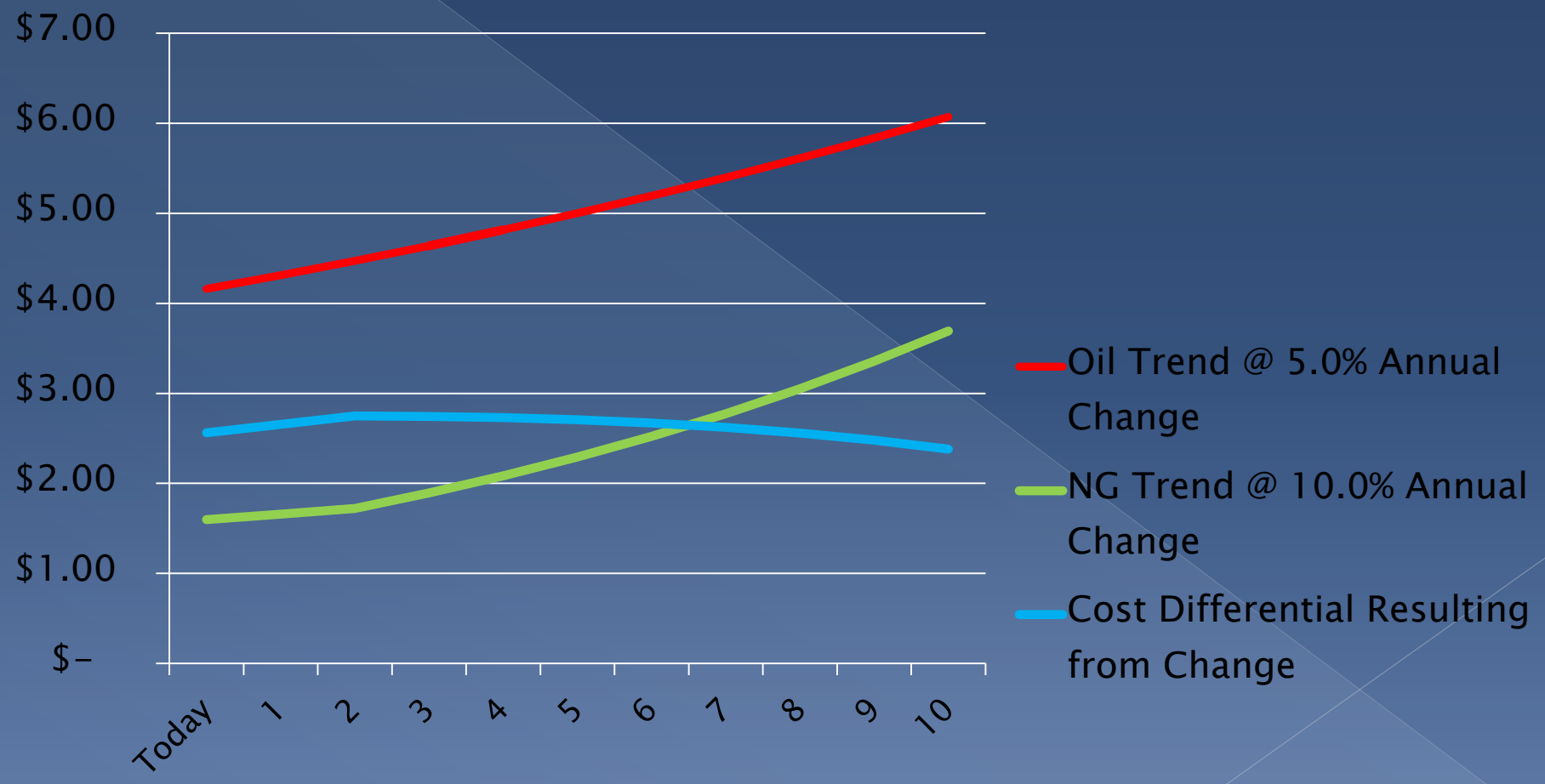
Natural Gas Supply

- In the past five years, shale reservoirs have revealed natural gas deposits that doubled previous estimated U.S. gas reserves
- 100 + year supply

US Average Retail Fuel Prices



Oil Up 5% /yr. – NG Up 10%/yr.



What happens if the cost of fuel Doubles?

- Diesel in Gallons
- Today's retail $4.00 (La Crosse, WI)
- Commodity $3.00 (variable)
- Taxes, Margin, Etc. $1.00 (fixed)

- Commodity (x2) $6.00
- Taxes, Margin, Etc. $1.00

- **Total Cost of Diesel**

$7.00 / Gallon

- CNG in DGE
- Today's Retail $1.80 (La Crosse, WI)
- Commodity $0.65 (Variable)
- Taxes, Margin, Etc. $1.15 (fixed)

- Commodity (x2) $1.30
- Taxes, Margin, Etc. $1.15

- **Total Cost of CNG**

$2.45 / DGE

Kwik Trip Natural Gas Program

Kwik Trip Natural Gas Program

- Kwik Trip committed time to researching each of the following fuels:
  - CNG
  - LNG
  - Propane
  - Biodiesel
  - E-85

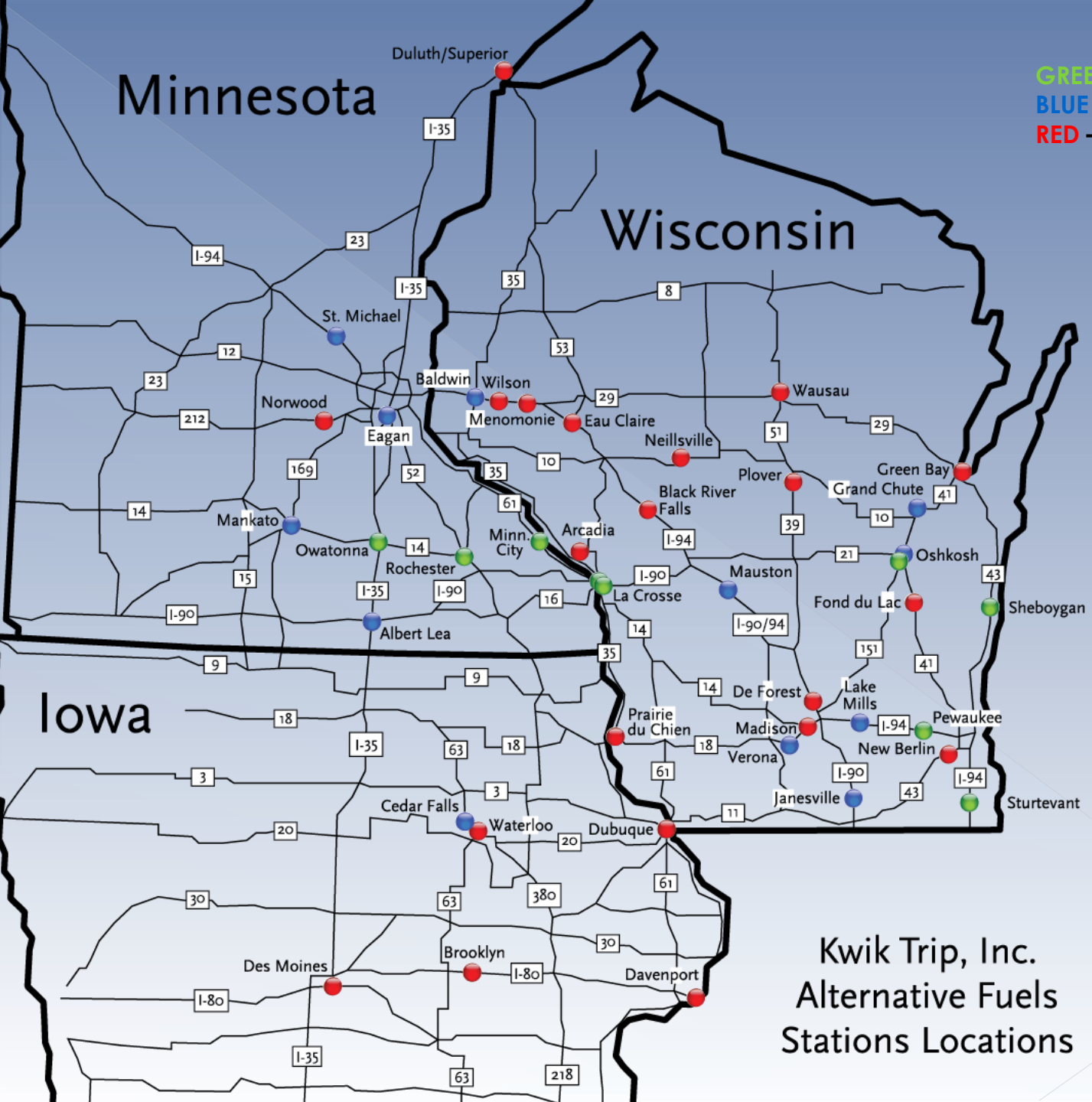
  - All of these products are available at Kwik Trips Alternative Fuels Fueling Station in La Crosse

Alternative Fuels Fueling Station

Retail CNG Fueling Experience

GREEN – Current Stations
BLUE – 2013 Spring Builds
RED – Markets Being Researched

Map



Kwik Trip, Inc.
Alternative Fuels
Stations Locations

Natural Gas Fleet Solution

Heavy Duty - 34

- Volvo VNL ISX-G 12L (CNG)
- Kenworth T440 ISL-G (CNG & LNG)
- Peterbilt 384 ISL-G (CNG & LNG)
- Freightliner M2 ISL-G (CNG & LNG)
- Autocar Yard Spotter ISL-G (LNG)
- Capacity Yard Spotter ISL-G (LNG)

Yard Spotters

- Currently operating 2 LNG yard spotters and have a third unit on order.
- Operate on a 24/7 Schedule
- Cummins Westport 9L 250HP @ 850 lb. ft. Torque
- Allison MD3060 Transmission
- 100 Liquid Gallon LNG Tank / Approximately 50 Dge.

ADVANTAGES	
Emissions	2010 Compliant – Without DPF and SCR
Operational Stability	Uptime No Need to Perform Emission System Regens

Refrigerated Transportation

Class 8 Grocery/Zone Tractors

- Pulling Multi-temp refrigerated trailers.
- GCW – 70-80K Diminishing Load
- Operate 2 Routes per Day – Average Approximately 600 Miles Daily.
- Cummins Westport ISLG 9L 320HP @ 1000 lb. ft. Torque
- Allison MD3060 Transmission
- Fuel Storage: **LNG** - Dual 119 Liquid Gallon / **CNG** - Dual 45.5 Dge Tanks

Class 7 Fresh Delivery Trucks

- Currently operating 2 CNG and 1 LNG.
- Fit with Multi-temp refrigeration.
- Operate Daily – Average Approximately 290 Miles/Day.
- GVW – Up to 46K Diminishing Load
- Cummins Westport ISLG 9L 320HP @ 860 lb. ft. Torque
- Allison MD3060 Transmission
- Fuel Storage: **LNG** - Dual 119 Liquid Gallon / **CNG** - Dual 45.5 Dge Tanks
  - Diesel – Currently Required for the Refrigeration Unit – *for now.*

Bulk Transportation

Petroleum and LNG Transport

- 9700 gallon MC406 Tank Trailers.
- GCW – 50% Loaded @ 80K – 50% Empty @ 25K
- Operate 24/7 – Average Approximately 800 Miles Daily.
- Cummins Westport ISLG 9L 320HP @ 1000 lb. ft. Torque
- Allison MD3060 Transmission
- Fuel Storage: **LNG** - Dual 119 Liquid Gallon / **CNG** - Dual 45.5 Dge Tanks

New LNG Technology

Spark Ignited vs. HPDI

- Spark
  - 100% NG fuel supply
  - No EPA after treatment
  - 85 – 90% efficiency
  - CNG and LNG
- HPDI
  - 5% Diesel Pilot
  - DPF, SCR, DEF, etc.
  - Compression ignition performance
  - LNG only

Power of Payback

- Spark ignited CNG
  - $2.00 per DGE
  - MPdge = 5.5
  - $4.00 Diesel
  - MPG = 6.5
- CNG CPM
  - $0.363
- Diesel CPM
  - $0.615
- **NG advantage**
  - **$0.252**

- HPDI LNG
  - $2.70 per DGE
  - Mpdge = 6.5
  - $4.00 Diesel
  - MPG = 6.5
- LNG CPM
  - $0.415
- Diesel CPM
  - $0,615
- **NG advantage**
  - **$0.20**

Thank you!

- For More Information Contact our Alternative Fuels Office
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