



# Unconventional Energy Markets and Tank Cars

## Presentation to NGFA

March 2012

*Unless otherwise noted, GATX is the source for data provided*



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# Today's Objective

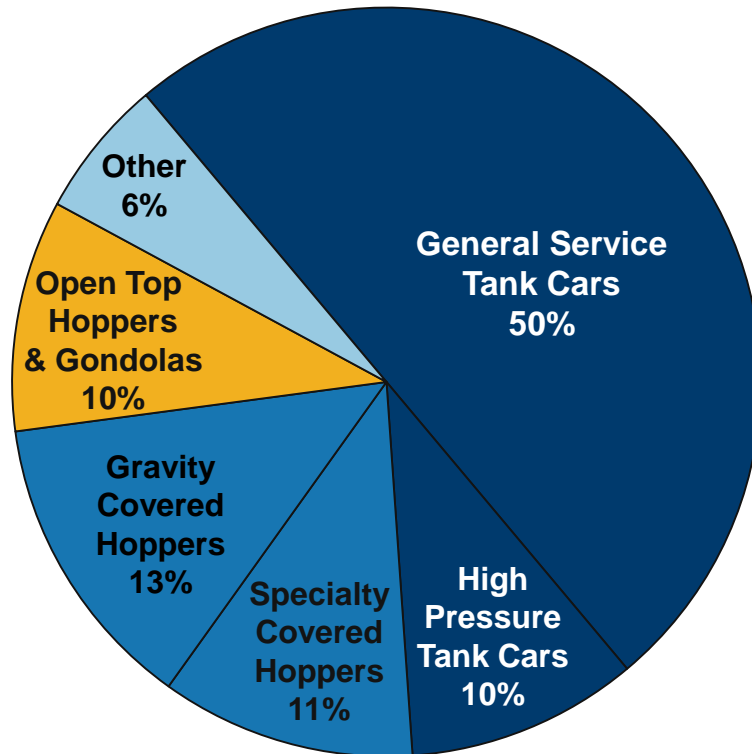


- Rail-served markets are interconnected
- Developments in “unconventional” energy markets have changed supply and demand for tank cars
- This presentation will:
  - Help NGFA members to understand how unconventional energy markets have affected – and will continue to affect – the pricing and availability of tank cars
  - Suggest what NGFA members can do to ensure reasonable access to tank cars during challenging markets

# GATX Worldwide Railcar Fleet

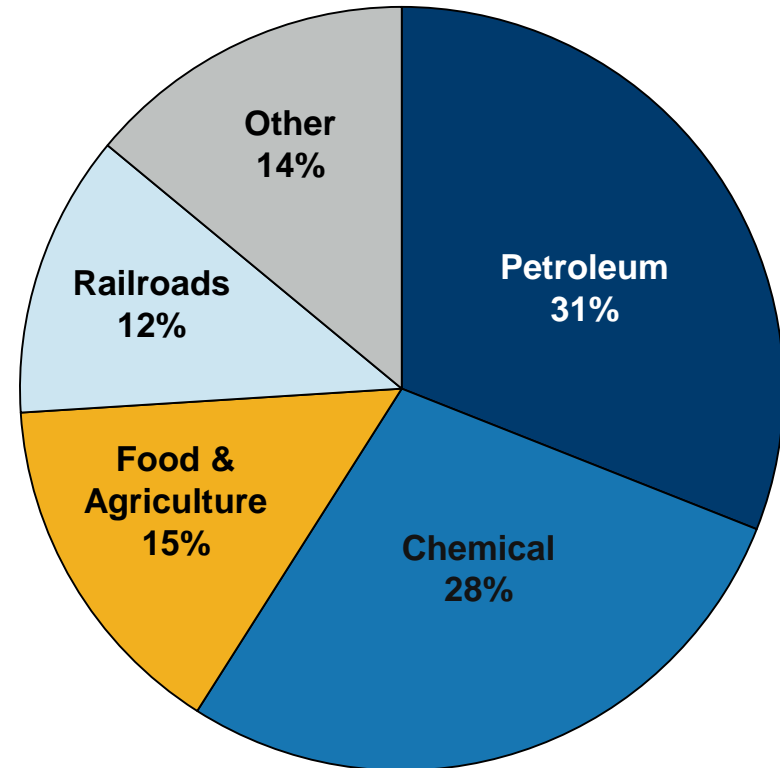


## Car Types



Approximately 130,000 wholly-owned railcars as of 12/31/11

## Industries Served



Based on 2011 Rail revenues approximately \$966 million

# Which unconventional energy markets rely most on tank cars?



- Shale plays
  - Outbound crude
  - Outbound condensate and NGLs
- Canadian oil sands
  - Inbound condensate
  - Outbound crude
- Biofuels
  - Outbound ethanol
  - Outbound biodiesel

# Which car types are affected?



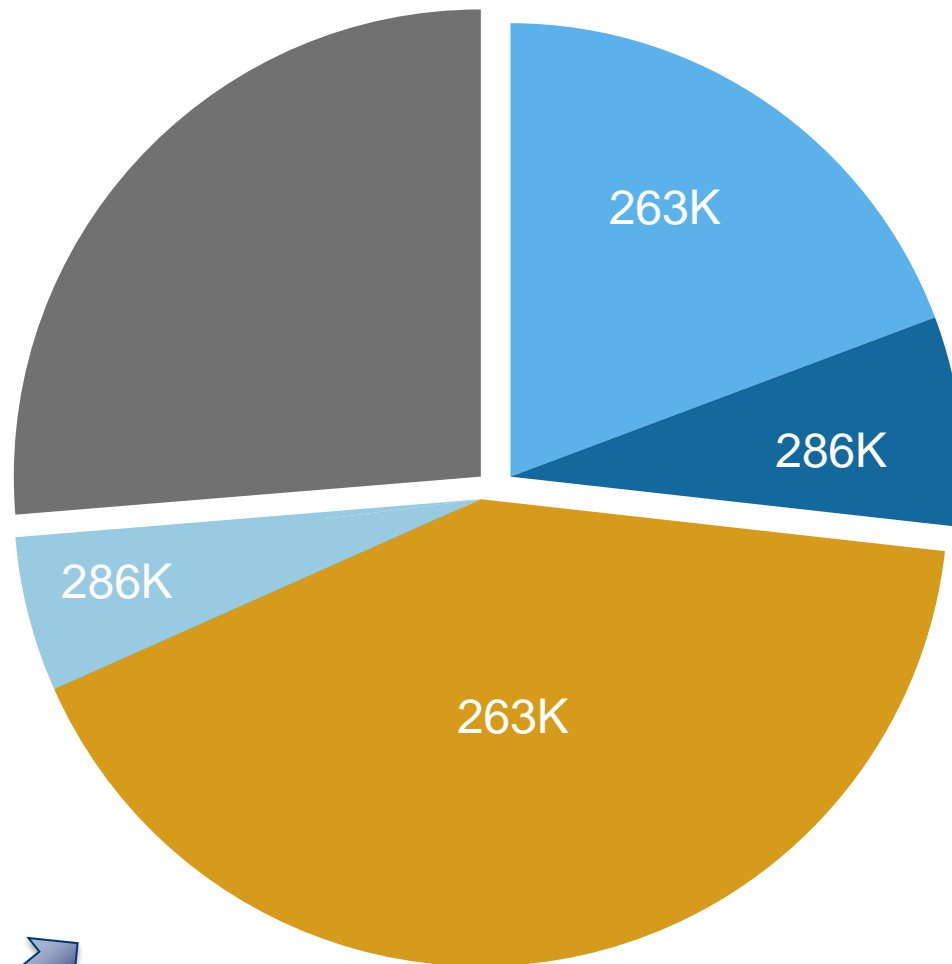
- Large non-insulated GS tanks for light crude, ethanol, and condensate
- Large insulated GS tanks for heavier crude and biodiesel
- Large pressure cars for NGLs and condensate
- Niche car types
- All tank car types are affected by high demand and longer backlogs
- *Many of these cars are used by NGFA member companies*

# 2012 Select Tank Car Count

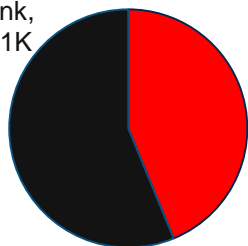


Large Pressure Tank  
35K Cars  
-4% Growth vs. 2010

25K-27K GS Tank  
36K Cars  
+1% Growth vs. 2010



Other Tank, 171K



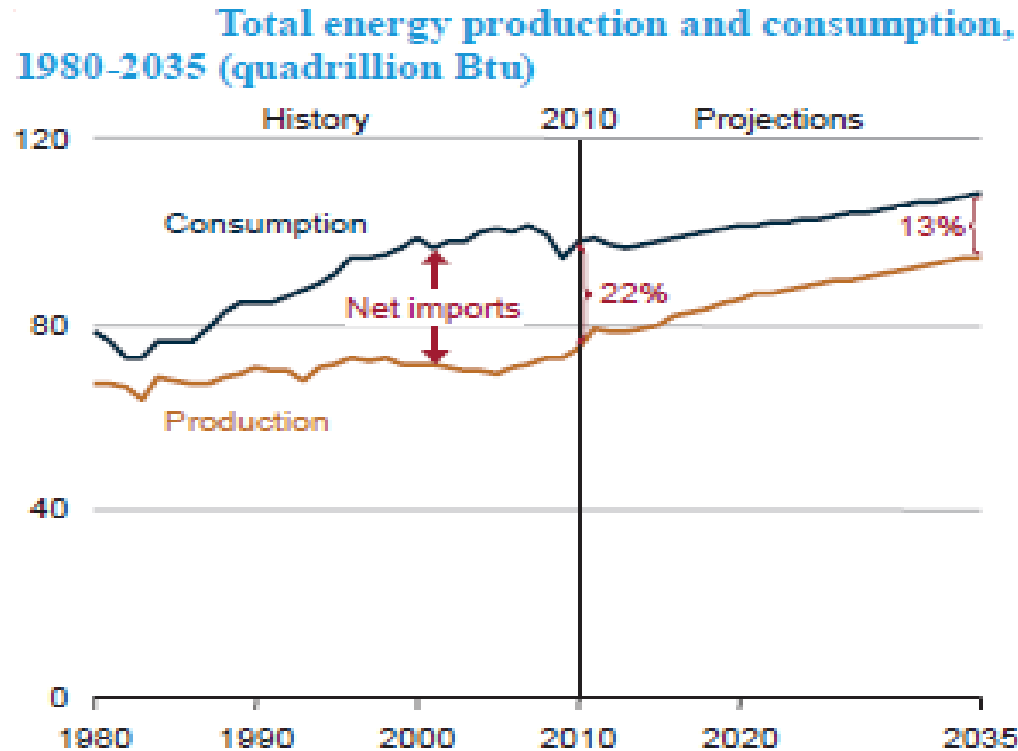
Affected Tank, 133K

28K-32K GS Tank  
62K Cars  
+2% Growth vs. 2010

Source: Railinc Umler and GATX



# Long-Term US Energy Production and Consumption

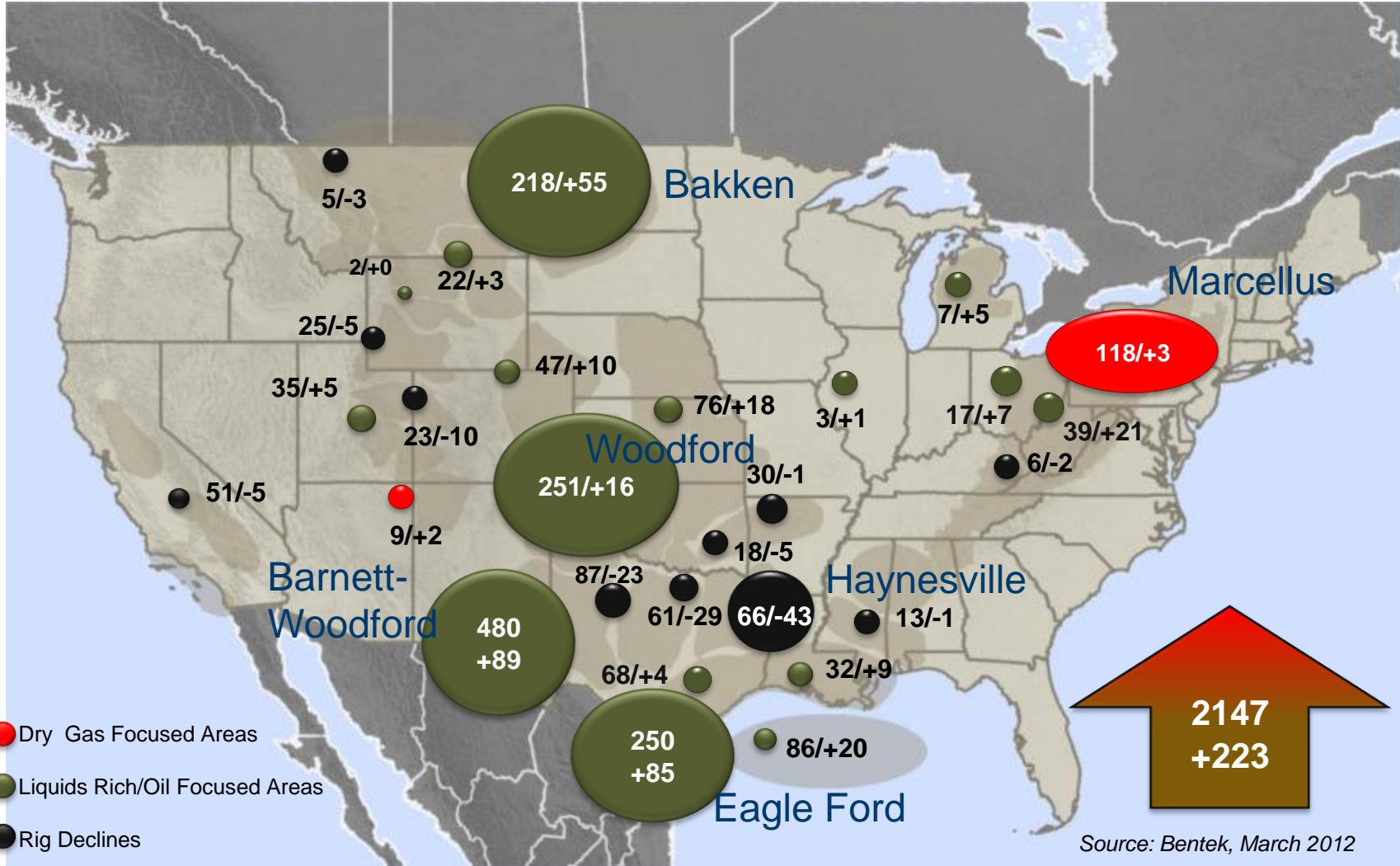


U.S. dependency on imported energy will decline over time

Source: EIA



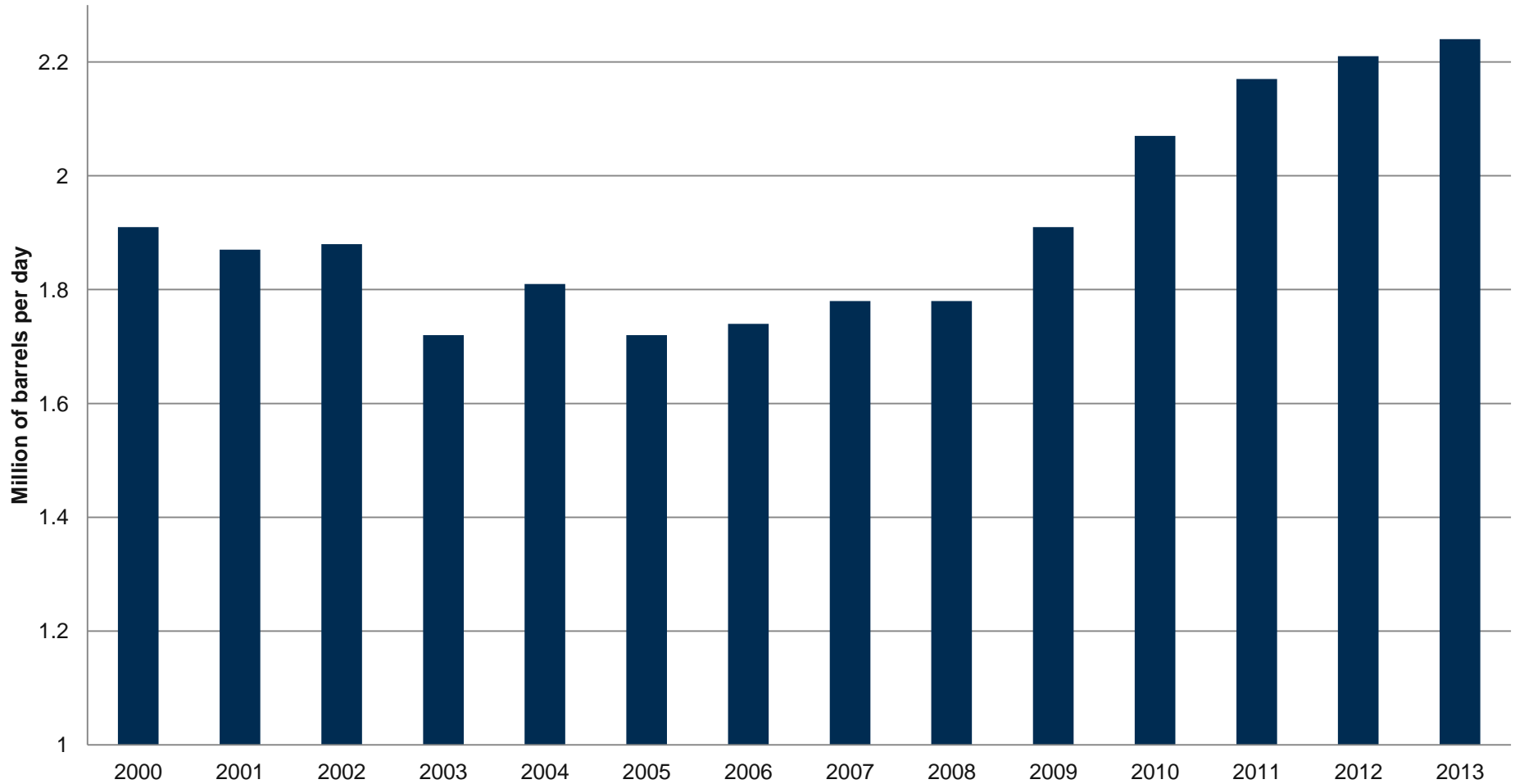
# Shale Drilling Rigs



Source: Bentek Energy

Note: Active rig count: Feb. 24, 2012 / Change in rig count from Feb. 25, 2011

# U.S. NGL Production Forecast

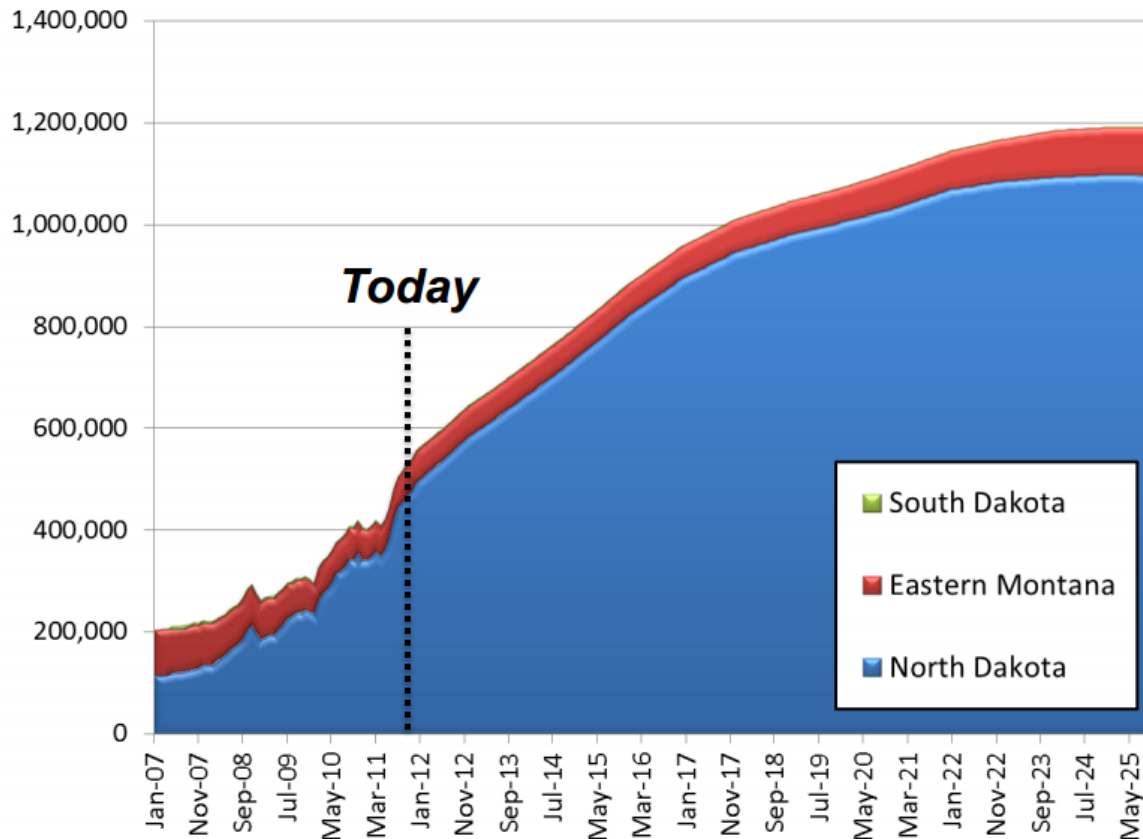


Source: EIA

# Williston Basin Oil Production Forecast



## Forecasting Williston Basin Oil Production, BOPD



Production forecast is for visual demonstration purposes only and should not be considered accurate for any near or long term planning.



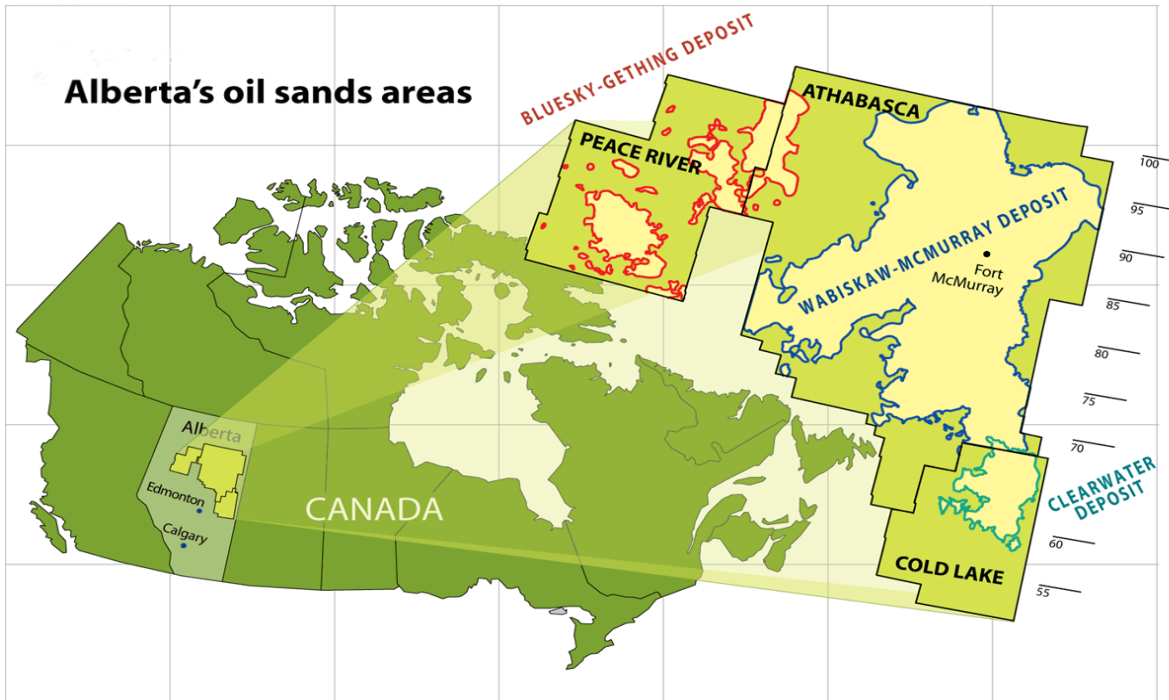
Source: North Dakota Pipeline Authority

# Alberta Oil Sands

STRENGTH

PERFORMANCE

OPPORTUNITIES



- Total oil reserve is currently estimated at 1.8 trillion barrels
- Current recoverable oil reserve at 169.3 billion barrels in oil sand and 1.5 billion barrels in conventional crude oil
- Third largest oil reserve in the world behind Saudi Arabia and Venezuela

Source: Canadian Association of Petroleum Producers

# Western Canadian Sedimentary Basin Production



| <i>million b/d</i>                     | 2010 | 2015 | 2020 | 2025 |
|--|------|------|------|------|
| Conventional<br>(including condensate) | 1.08 | 1.10 | 0.99 | 0.86 |
| Oil Sands                              | 1.47 | 2.16 | 3.00 | 3.73 |
| Growth Case                            | 2.55 | 3.26 | 3.99 | 4.59 |

- In 2010, Western Canadian Sedimentary Basin, which includes most of Alberta, parts of Saskatchewan, British Columbia, Manitoba and the Northwest Territories produced 2.55 million barrels/day
  - Alberta's production alone is 1.6 million barrels/day

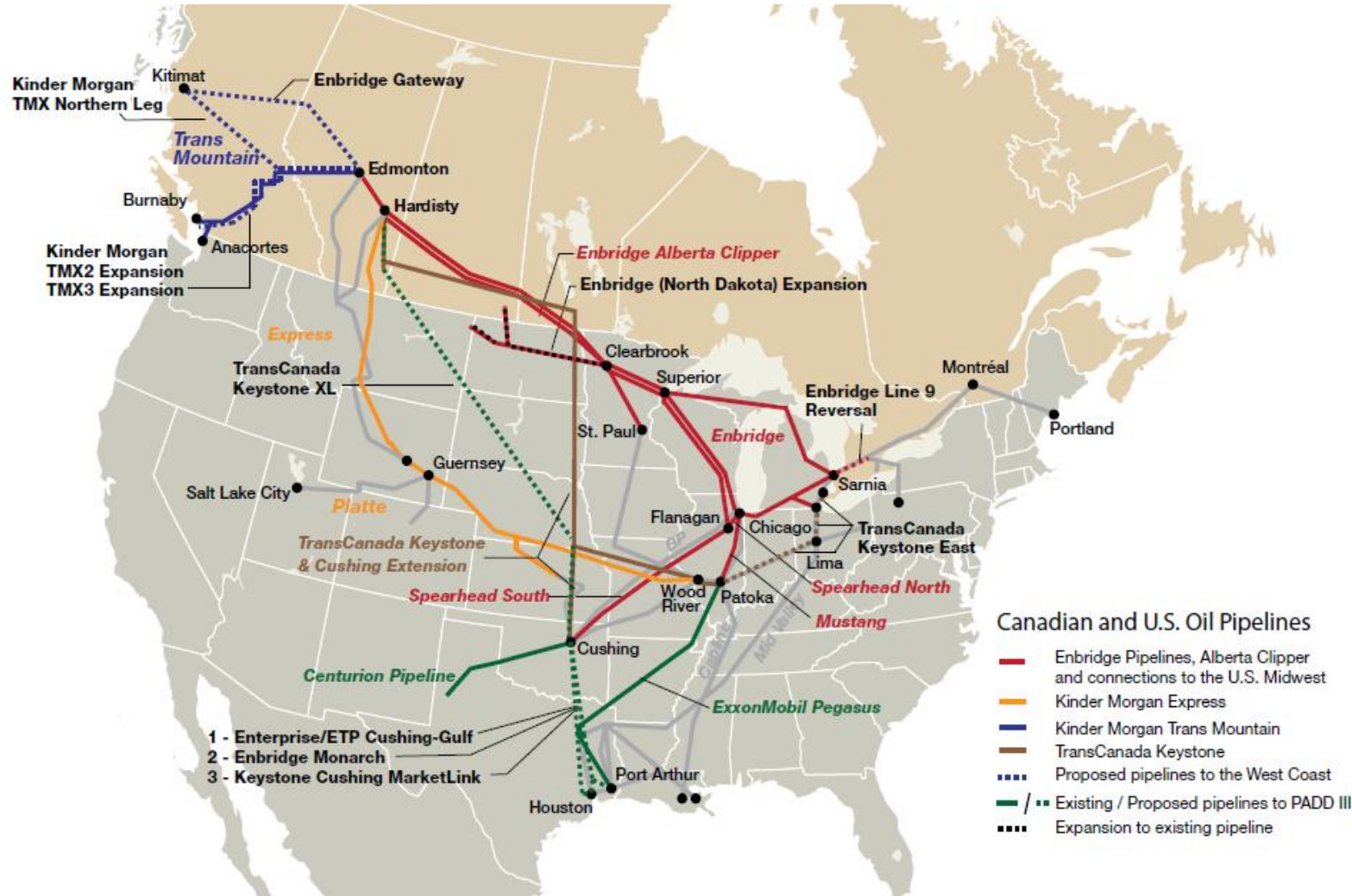
Source: Canadian Association of Petroleum Producers



# Crude Pipelines



| STRENGTH   | PERFORMANCE  | OPPORTUNITIES  |
|--|--|--|
|  |  |  |



Source: Canadian Association of Petroleum Producers

# Keystone XL



| STRENGTH   | PERFORMANCE  | OPPORTUNITIES  |
|--|--|--|
|  |  |  |

Keystone Pipeline Map

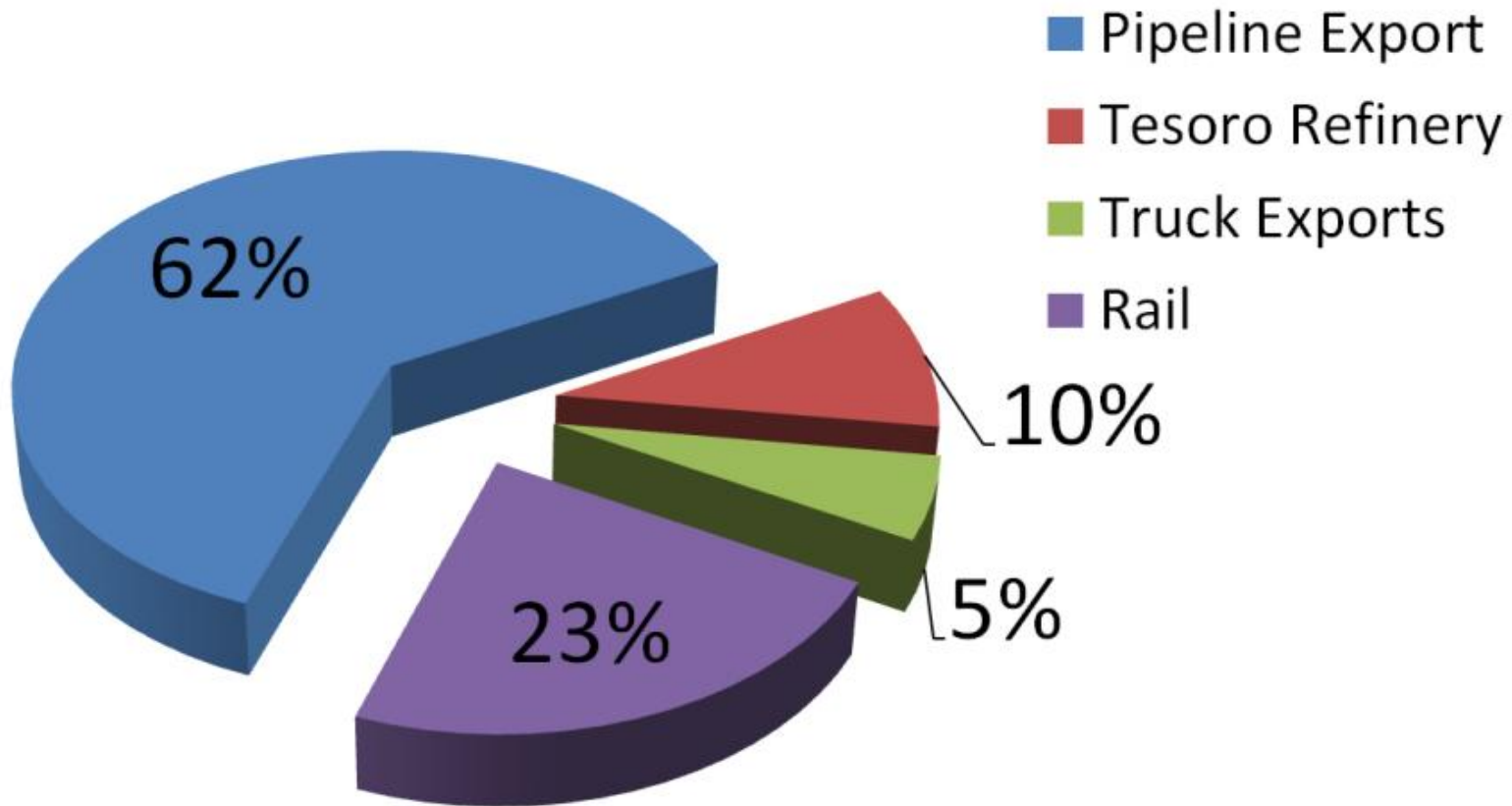


- Transport crude from Keystone Hardisty Terminal in Alberta to Houston
- Estimated to go in service in 2015 with a total capacity of 1.1 million barrels/day
- Decided to build southern leg from Cushing to Gulf of Mexico with estimated in service date in mid 2013 carrying 700,000 barrels/day

Source: TransCanada



# Williston Basin Oil Transportation



November 2011 Estimates

Source: North Dakota Pipeline Authority

# Unit Trains



- Crude unit trains typically range from 95-118 cars
- Aggregate unit-train capacity is between 65,000 and 85,000 barrels of crude
- Cycle times vary depending destinations, but 14 day round-trips to the Gulf Coast region appear to be the norm
  - This implies very high mileage---up to 100,000 miles per year vs. ~30,000 for a typical general-service tank car.

Source: Reuters

# Williston Basin Outbound Trains



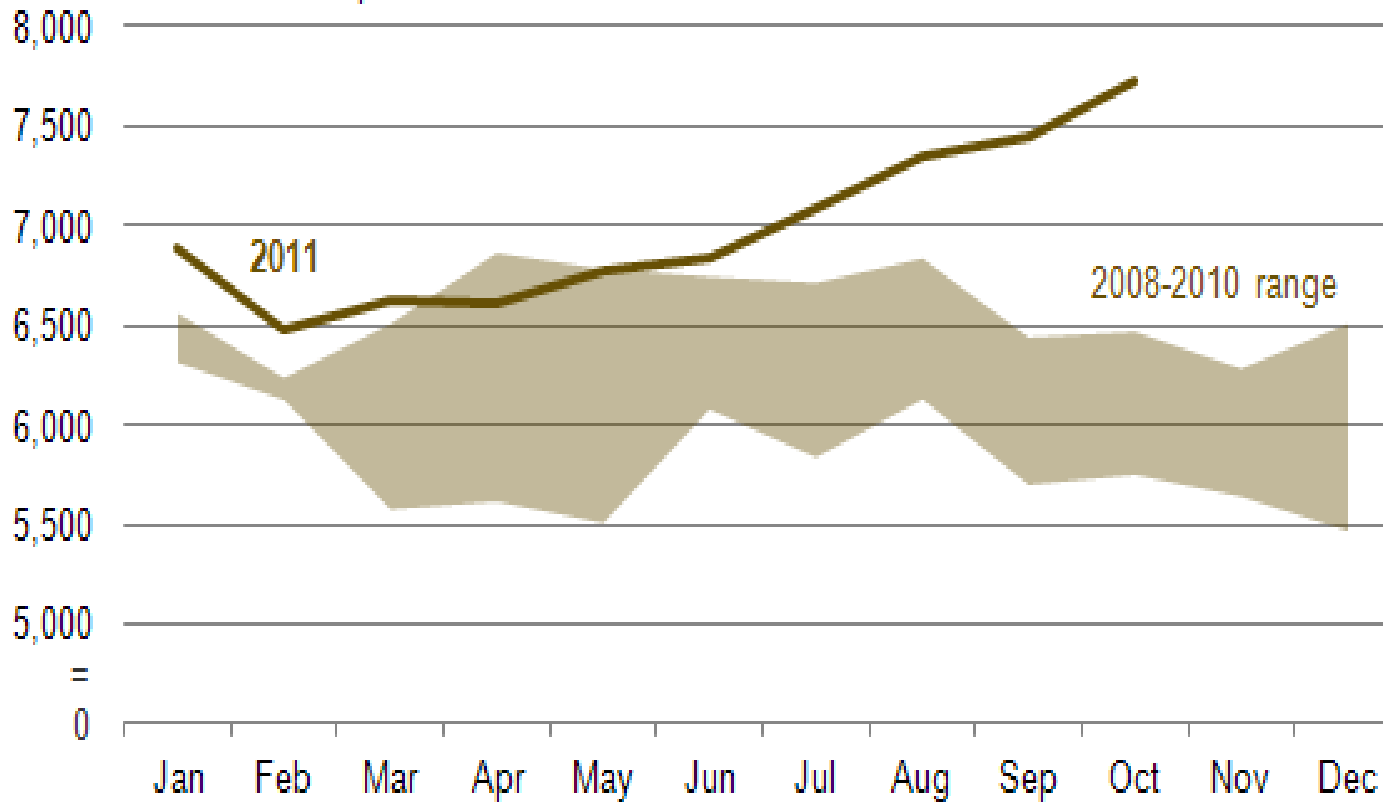
| Outbound Rail Expansions |                        |                     |                                    |
|--------------------------|------------------------|---------------------|------------------------------------|
| Company                  | Rail Facility Location | Expected Completion | Additional Capacity                |
| Bakken Oil Express       | Dickinson, ND          | In-Service          | 60,000                             |
| Savage                   | Trenton, ND            | 2Q 2012             | 60,000                             |
| Hess                     | Tioga, ND              | 1Q 2012             | 54,000                             |
| Enbridge                 | Berthold, ND           | 3Q 2012; 1Q 2013    | 10,000 in 3Q2012; 70,000 in 1Q2013 |
| Rangeland                | Epping, ND             | 2Q 2012             | 80,000                             |
| Musket Corp              | Dore, ND               | 1Q 2012             | 70,000                             |
| <b>Total</b>             |                        |                     | <b>404,000</b>                     |

Source: Bentek Energy

# Petroleum Related Carloads

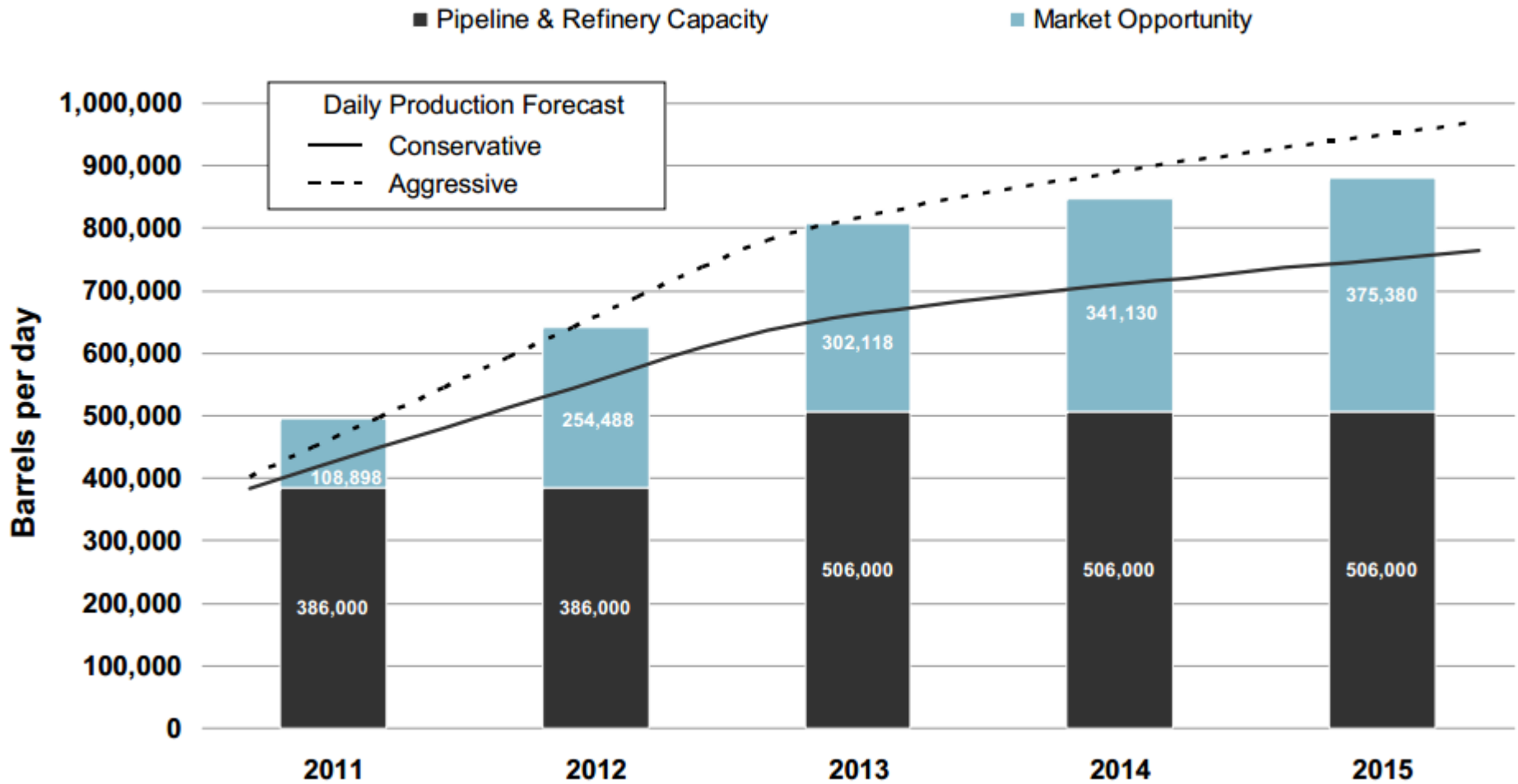


Average weekly U.S. rail carloads of crude oil and petroleum products  
number of rail carloads per week



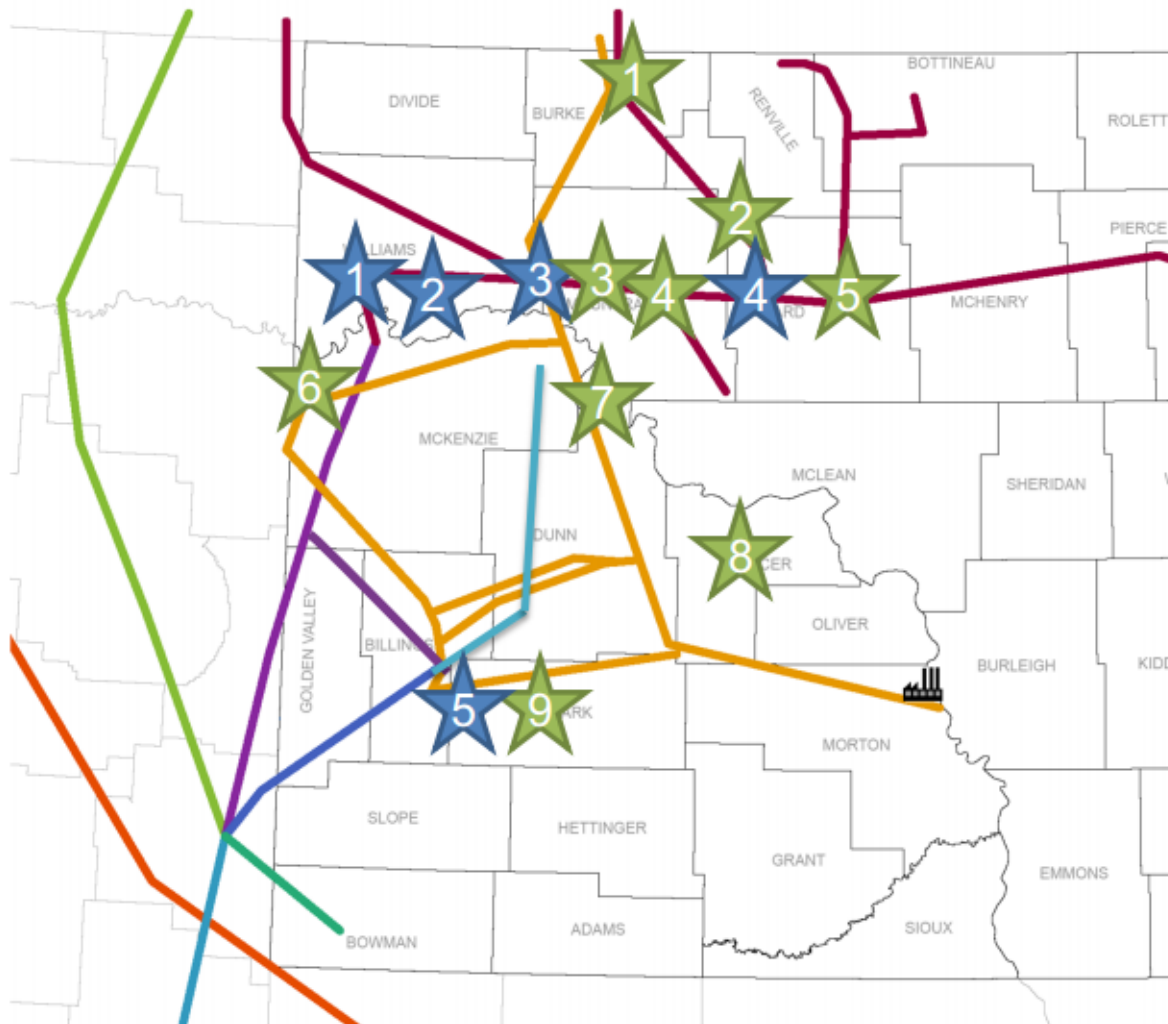
Source: EIA and AAR

# Bakken Forecast



Source: BNSF

# Existing & Planned Rail Locations in ND



## ★ Existing

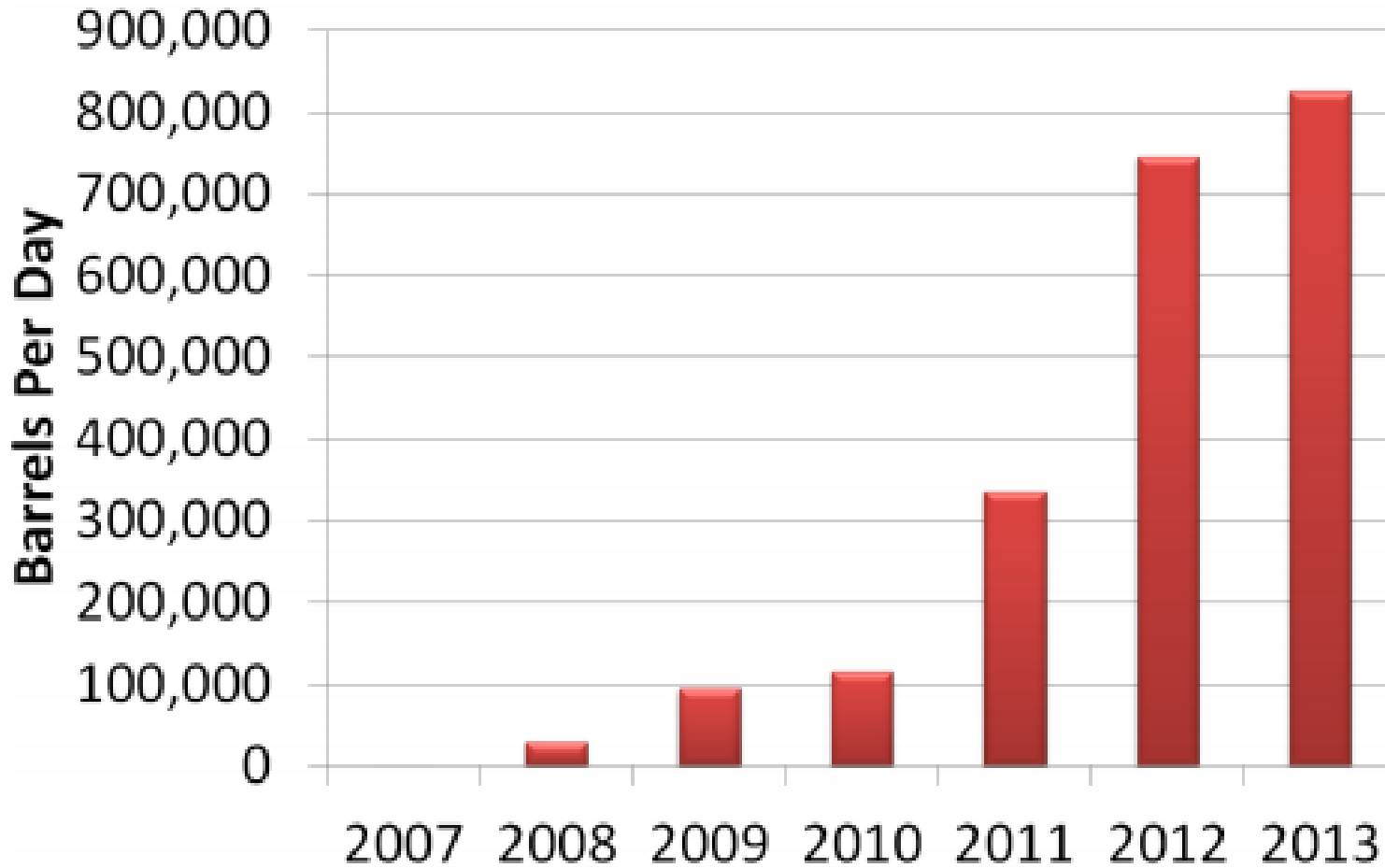
- 1) Stampede
- 2) Donnybrook
- 3) Ross – Plains
- 4) Stanley – EOG
- 5) Minot – ND Port Services
- 6) Dore
- 7) New Town – Dakota Transport Solutions
- 8) Zap – Basin Transload
- 9) Dickinson – BOE

## ★ Planned

- 1) Trenton – Savage
- 2) Epping – Rangeland
- 3) Tioga – Hess
- 4) Berthold – Enbridge
- 5) Fryburg – Great Northern

Source: North Dakota Pipeline Authority  
In 1/24/2012 presentation

# North Dakota Rail Transportation Forecast Capacity



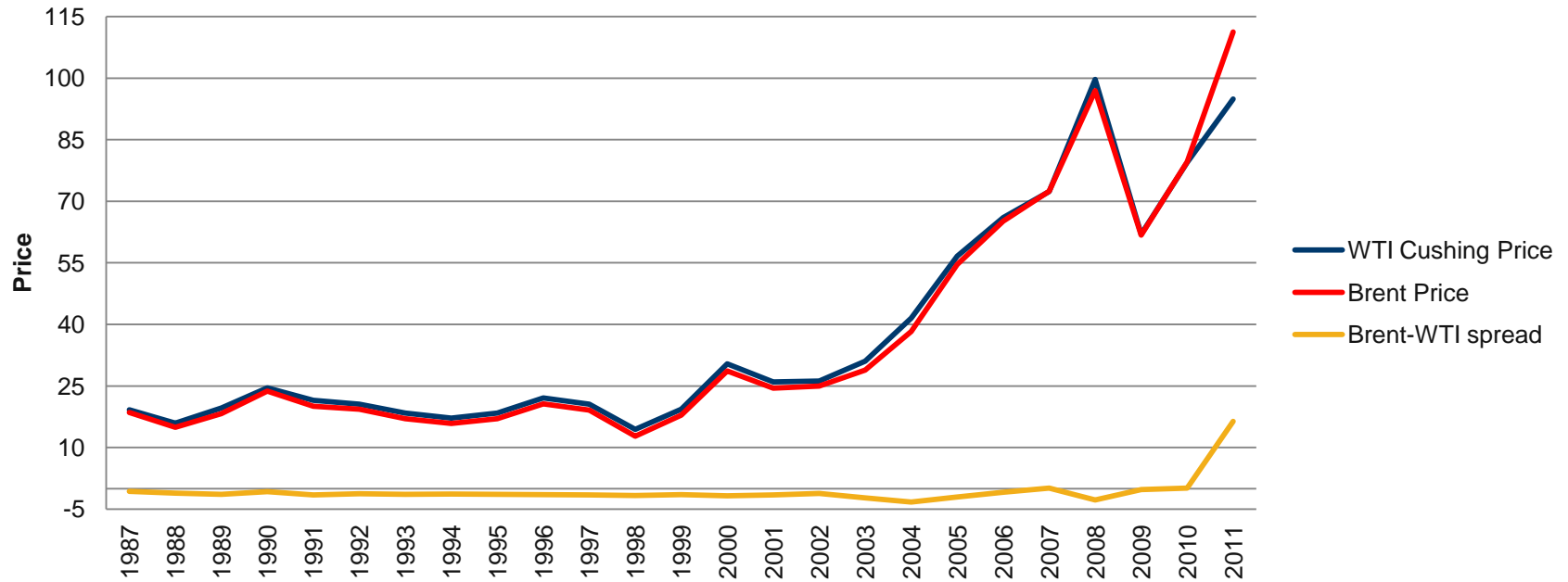
Source: North Dakota Pipeline Authority



# Brent-WTI Spread



## Annual Brent-WTI Spread since 1987



- Bottleneck in Cushing set back WTI price
- CME forecasts the Brent-WTI spread will return to \$2-\$4 by 2015 due to increased capacity of pipelines relieving the bottleneck in Cushing, OK

Source: Reuters

# Key questions:



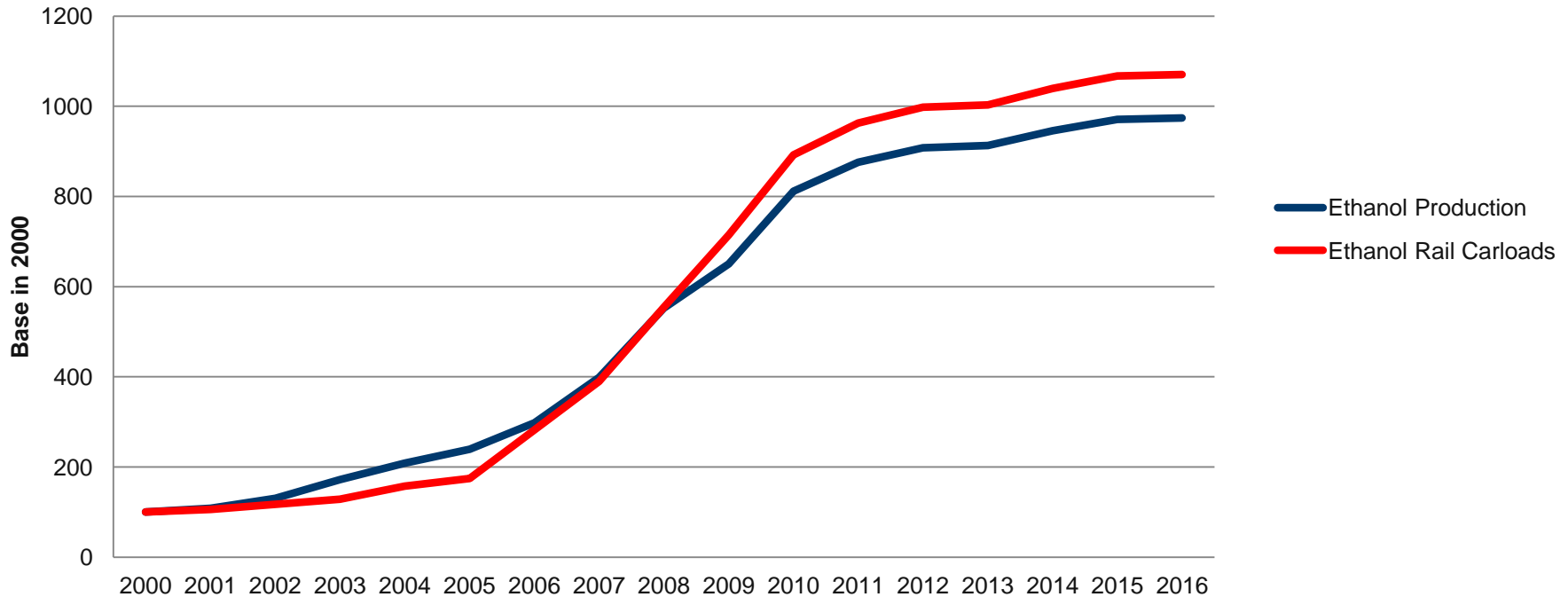
| Crude-by-Rail Facilities Displacing Cushing-Bound Volumes    |                          |                     |                            |                           |                |
|--|--------------------------|---------------------|----------------------------|---------------------------|----------------|
| Project Name   | Primary Owner            | Location            | Destination, if applicable | Estimated In-service Date | Capacity       |
| St. James Terminal   | U.S. Development Group   | Louisiana           |                            | 10/21/2011                | 65,000         |
| Eunice & Riverside Facilities                                | Crosstex                 | Louisiana           |                            | 12/31/2011                | 6,000          |
| Rangeland Rail Facility                                      | Rangeland (Tesoro lease) | Williams County, ND | Anacortes, WA              | 3/1/2012                  | 28,000         |
| Permian Basin  | Flint Hills/Koch Supply  | Odessa, TX          | Texas Gulf Coast           | 3/1/2012                  | 20,000         |
| St James Terminal  | EOG Resources/NuStar     | Louisiana           |                            | 4/1/2012                  | 50,000         |
| OmniPort   | GT Logistics             | Port Arthur, TX     |                            | 5/1/2012                  | 100,000        |
| Port Arthur Crude Terminal                                   | Savage Industries        | Port Arthur, TX     |                            | 7/1/2012                  | 50,000         |
| Eunice & Riverside Facilities                                | Crosstex                 | Louisiana           |                            | 9/1/2012                  | 8,000          |
| St James Terminal  | EOG Resources/NuStar     | Louisiana           |                            | 12/1/2012                 | 50,000         |
| Eunice & Riverside Facilities                                | Crosstex                 | Louisiana           |                            | 9/1/2013                  | 50,000         |
| Bakken Oil Express   | Lario Logistics          | Dickinson, ND       | St. James, LA              | 11/1/2013                 | 60,000         |
| Various Permian, phase 1                                     | Various                  | Permian Basin       | Texas Gulf Coast           | 12/1/2012                 | 30,000         |
| Various Permian, phase 2                                     | Various                  | Permian Basin       | Texas Gulf Coast           | 6/1/2012                  | 30,000         |
| <b>Total</b>   |                          |                     |                            |                           | <b>547,000</b> |
| <b>Resulting Volumes Not Going to Cushing-linked Markets</b> |                          |                     |                            |                           | <b>340,000</b> |

- How many light crude cars do we need:
  - Today?
  - If pipeline infrastructure gets built out fully?
  - If the Brent-WTI spread narrows over the longer term?

# And let's not forget ethanol...



## Rail Carload of Ethanol vs Ethanol Production (Index Year=2000)



- Domestic market saturated
- Current U.S. fuel mandate remains at E-10 with no current expectation to increase
- Ethanol exports main force for short-term demand

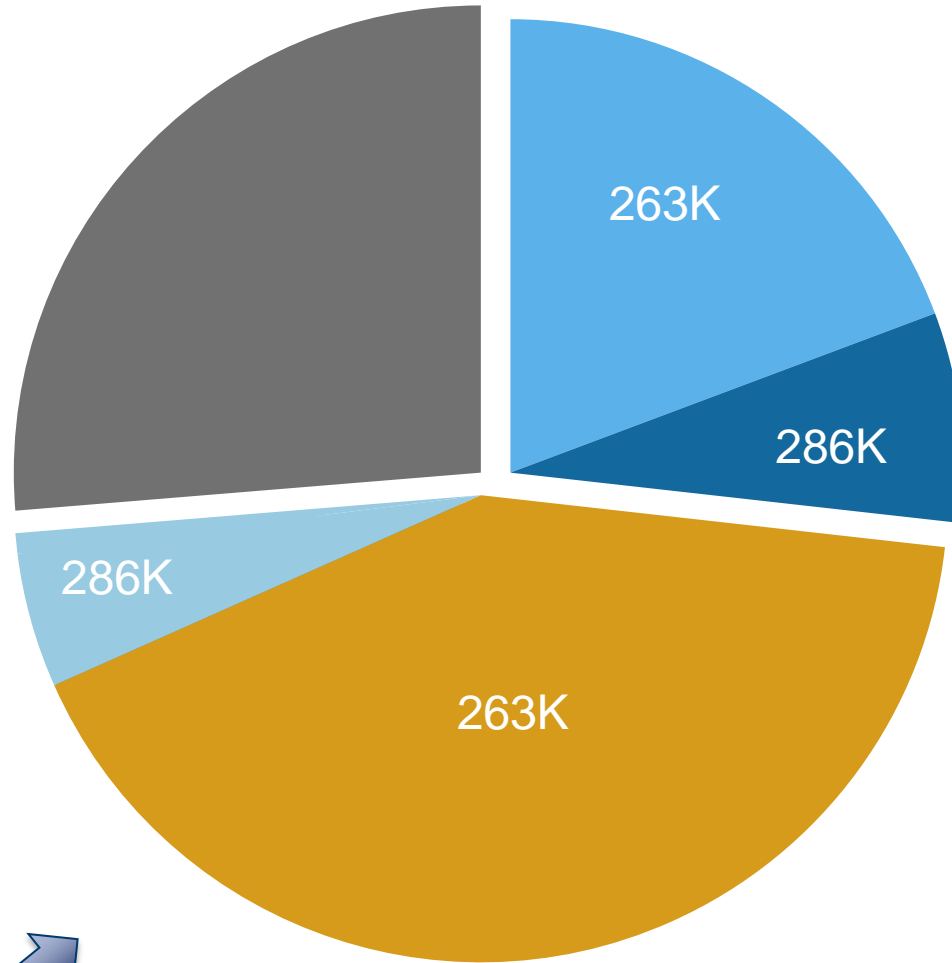
Source: RFA, IHS Global  
Insight and GATX

# Packing Group I and II Tank Cars



- Recent derailments caused regulatory scrutiny of tank cars carrying flammable liquids in unit-train service
- AAR approved new designs
- FRA rulemaking process is underway
- Uncertainty on what the final rule will be (NTSB Report)
- GATX and others actively engaged in dialogue with regulators

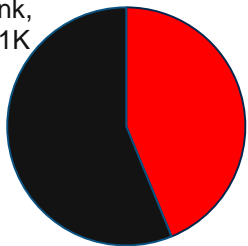
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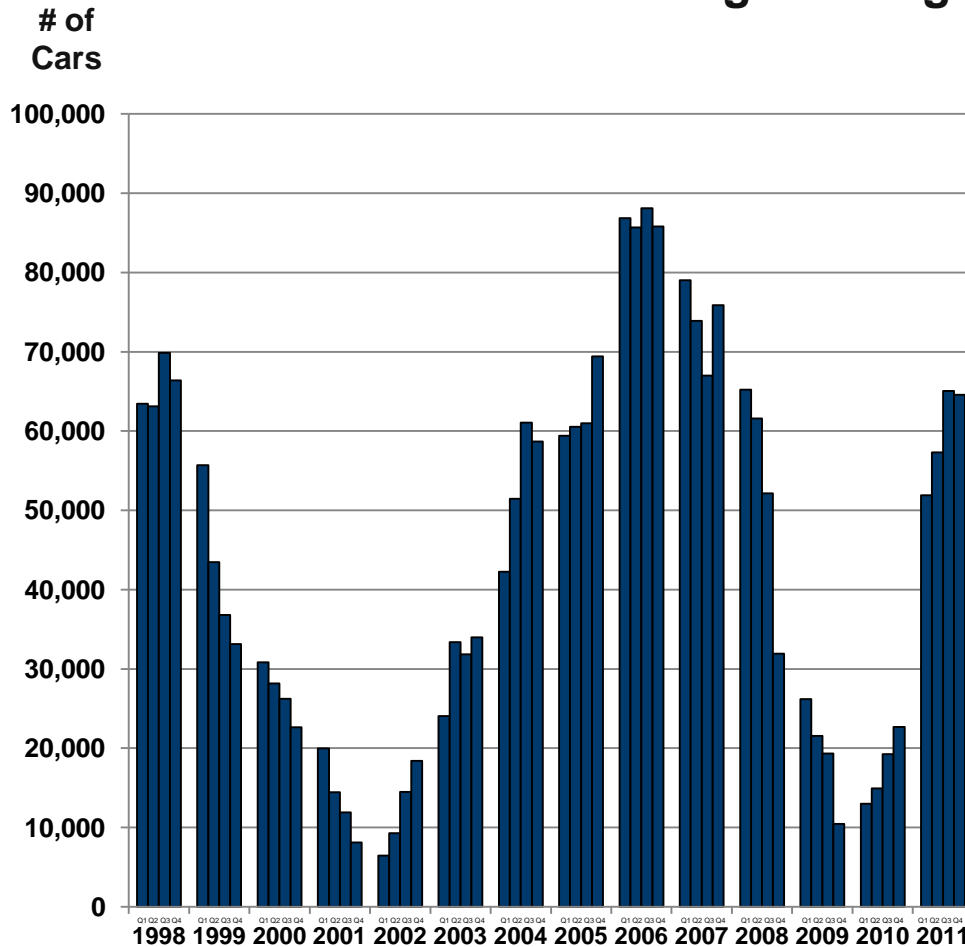
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Source: Railinc Umler and GATX

# North American Rail Market



## U.S. Railcar Manufacturing Backlog\*



- North American rail market continues to improve
  - Rail traffic recovered from the low point, but has not achieved prior peak levels
  - Industry-wide idle railcar inventory has declined
  - New car backlogs have lengthened substantially

\*Source: Railway Supply Institute

# Risk Factors



- Energy prices/demand
- Energy subsidies/mandates
- Environmental pressures
- Railcar design/regulatory questions
- Unit-train efficiencies
- Competing modes (pipeline)
- Macroeconomic issues (continued recovery or return to recession)



# Conclusion for NGFA Members



- Near-term tankcar demand is robust, and market is extremely tight
- Risk factors abound in both directions
- Shippers urged to act in advance to secure car supply
  - LPG, larger tanks (EC/I and NC/NI)
  - All tanks affected by backlog
- Mission-critical car needs should not be left to chance