Changes in U.S. Participation in Global Product Markets:
Increases and Changes in Product Exports

2014 EIA Energy Conference
Hart Energy Research and Consulting

Washington DC
July 14, 2014
Emerging Characteristics of Global Petroleum Product Markets

Growth in Demand Focused in Pacific. Incremental demand oriented toward distillate

**Change in Product Demand 2013-28 - Thousand b/d**

**Product mix %**

- **2013**: Gasoline 26%, Naphtha 7%, Middle Distillate 9%, Heavy Fuel Oil 7%, LPG 7%
- **2018**: Gasoline 25%, Naphtha 7%, Middle Distillate 8%, Heavy Fuel Oil 7%, LPG 7%
- **2023**: Gasoline 24%, Naphtha 7%, Middle Distillate 8%, Heavy Fuel Oil 7%, LPG 7%
- **2028**: Gasoline 24%, Naphtha 7%, Middle Distillate 8%, Heavy Fuel Oil 7%, LPG 7%
- **Incremental 2013-2028**: Gasoline 12%, Naphtha 5%, Middle Distillate 8%, Heavy Fuel Oil 8%, LPG 15%

*Source: Hart Energy Research & Consulting, 2014*
Growth in U.S. Gasoline and Distillate Exports

Exports driven by favorable competitive position of U.S. refineries (shale/tight oil and gas related) and capacity constraints in receiving markets

Source: EIA
**Import/Export Market - 2013**

Total import market of 2.5 Million b/d: Latin America and Africa gasoline and distillate importers; Middle East gasoline, Europe Diesel

**Imports(-exports) Thousand b/d**

**Global Importing Markets - Total 2.5 Million b/d**

Source: EIA, IEA and Hart Energy Research & Consulting, 2014
Outlook for Gasoline/Distillate Export Markets

Some near term growth, longer term stable. Middle East exports expected to capture some market share.

Net Imports by Region – Thousand b/d

Distillate Quality Improvement

Distillate demand and ULSD (<50ppm) demand Europe/Latin America/Africa. ULSD will make up growing share of distillate and of export market.

Future Export Growth Will Face Some Limitation

Significant Middle East Expansion

- A portion of Latin America demand will be supplied by biofuels and ethers
- Capacity expansions, particularly in Middle East, will add to supply capability

<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Capacity</th>
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<tr>
<td>Thru 2018</td>
<td></td>
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Global Condensate and NGL

Condensate and NGL production will grow outside of U.S. as well

Expanding Condensate/NGL Production Will Increase in Terms of Share of Supply

Largest increases in North America, Middle East/Africa

Growing Surplus of Naphtha in U.S. Market

Growth in naphtha supply while market demand shrinks. Refiners facing challenges of balancing naphtha

- Condensate/NGL production increase adding to light end supply
- Lighter crude, higher refinery utilization increasing naphtha supply
- Lower gasoline and naphtha demand to absorb naphtha

U.S. Naphtha Exports – Global Ethylene Cracker Feed

U.S. will emerge as major naphtha exporter along with Middle East and Africa, surplus naphtha absorbed in Asia ethylene market

Global Ethylene Cracker Feed

U.S. Naphtha Imports - Thousand b/d

thousand barrels per day