Market Implications and Drivers of East Coast Refinery Closings

The Washington Energy Forum – EPRINC Embassy Series

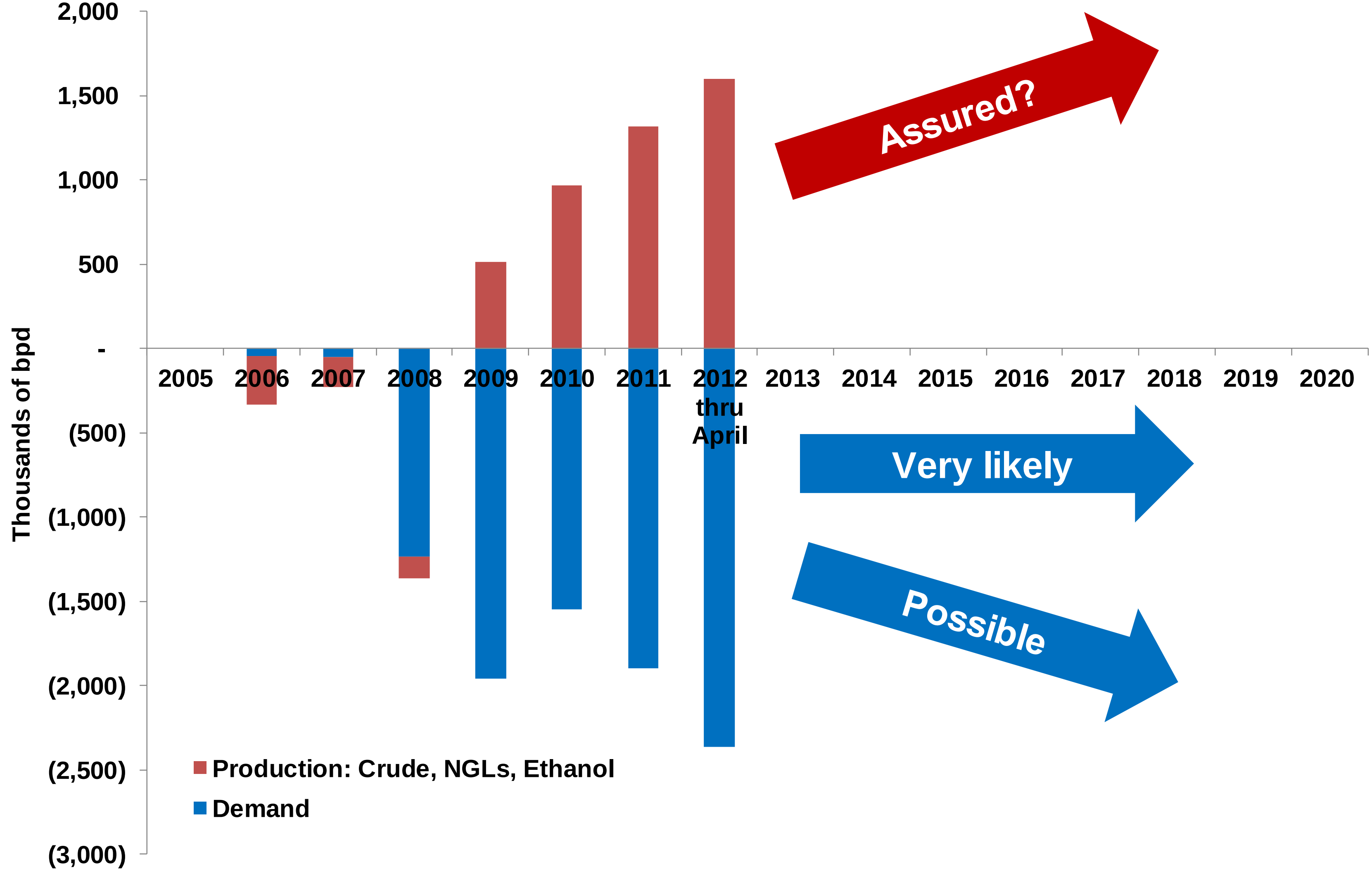
Embassy of Canada

July 9, 2012

Agenda

- New England and mid-Atlantic supplies and recent trends
- Emerging and future sources of supply for the region
- Long-term drivers and implications for the region
- Refinery closures in a broader context

US Supply and Demand Changes Since 2005: More Future Supply and Less Demand?



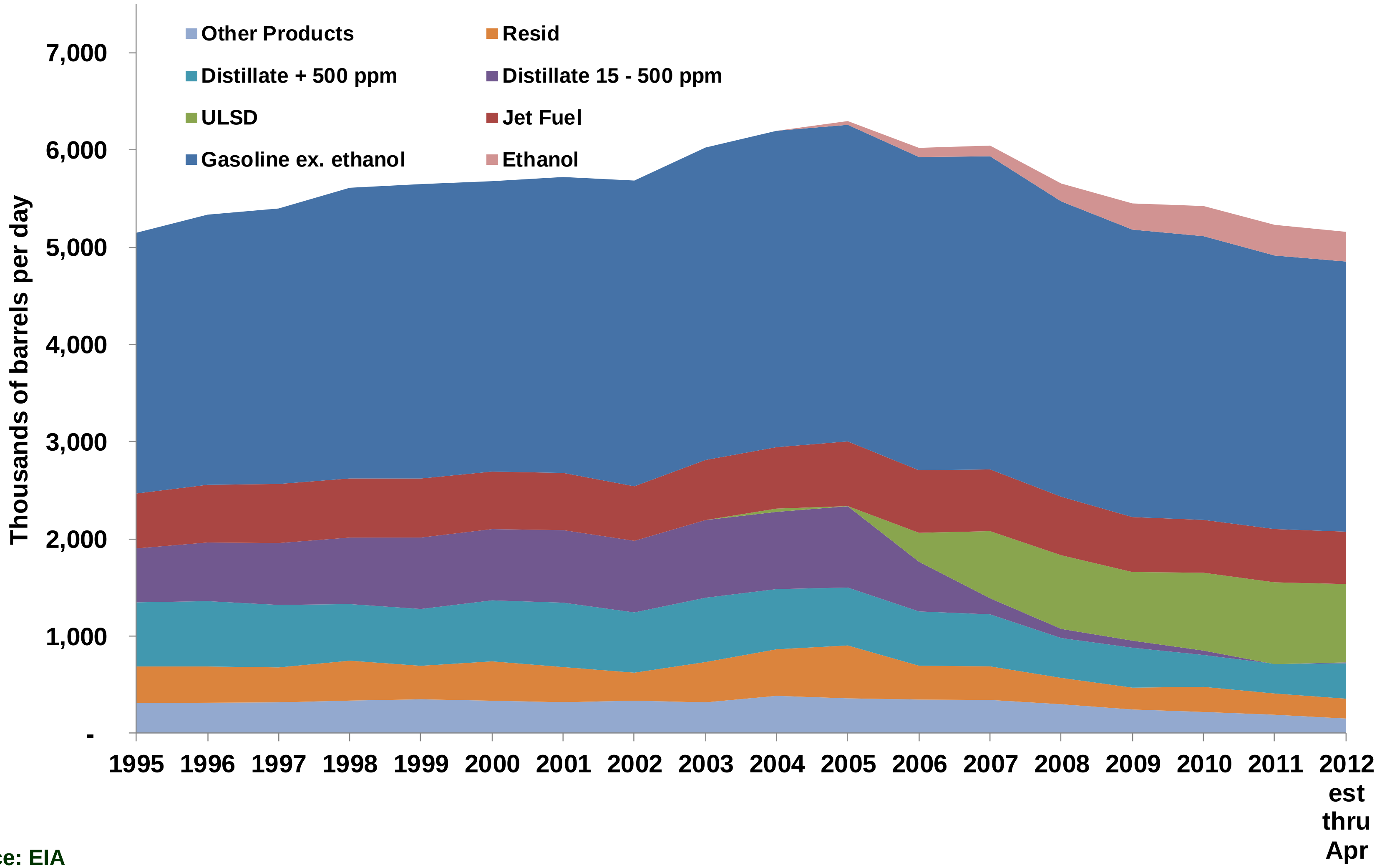
Estimated Mid-Atlantic and Northeast (PADDs 1a & 1b) Supply Changes

volumes in thousands of barrels per day	Gasoline	Distillates (incl. Jet Fuel	Total
East Coast Net Change in Refinery Production (1)	-	-	-
Hovensa St. Croix Closed (2)	(50)	(45)	(95)
Elimination of Distillate Exports from the Mid-Atlantic and Northeast (3)		75	75
Increase from Midwest to Pennsylvania (4)	25	25	50
Colonial Pipeline Gasoline Expansion 2011 (5)	100		100
Colonial Pipeline Distillate Expansion 2nd Quarter 2012 (6)		25	25
Net Change After Marcus Hook is Closed	**75**	**80**	**155**
Philadelphia refinery closes 3nd Quarter 2012 (7)	(135)	(100)	(235)
Net Change if Philadelphia is Closed	**(60)**	**(20)**	**(80)**
Colonial Gasoline Expansion 2nd Quarter 2013 (8)	50		50
Net Change 1st Quarter 2013	**(10)**	**(20)**	**(30)**
Potential Additional Volumes Available in the Short-term from the USGC by Tanker or Long-term from Future Pipeline Expansions (9)	100	465	565

Source: Kevin J. Lindemer LLC

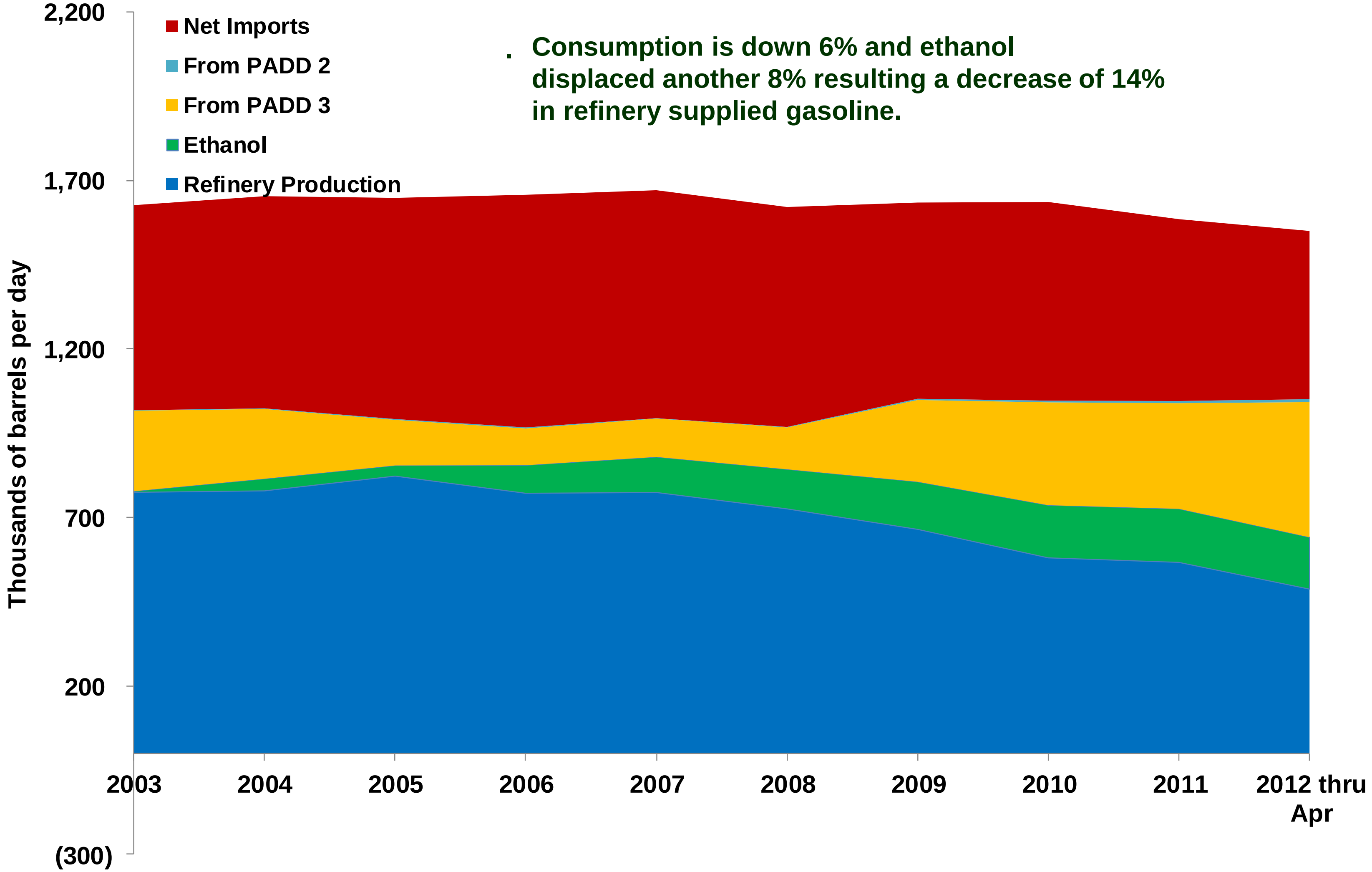
New England and mid-Atlantic supplies and recent trends

PADD 1 (east coast) Refinery Produced Supply: Down 18% from 2005 to 2011



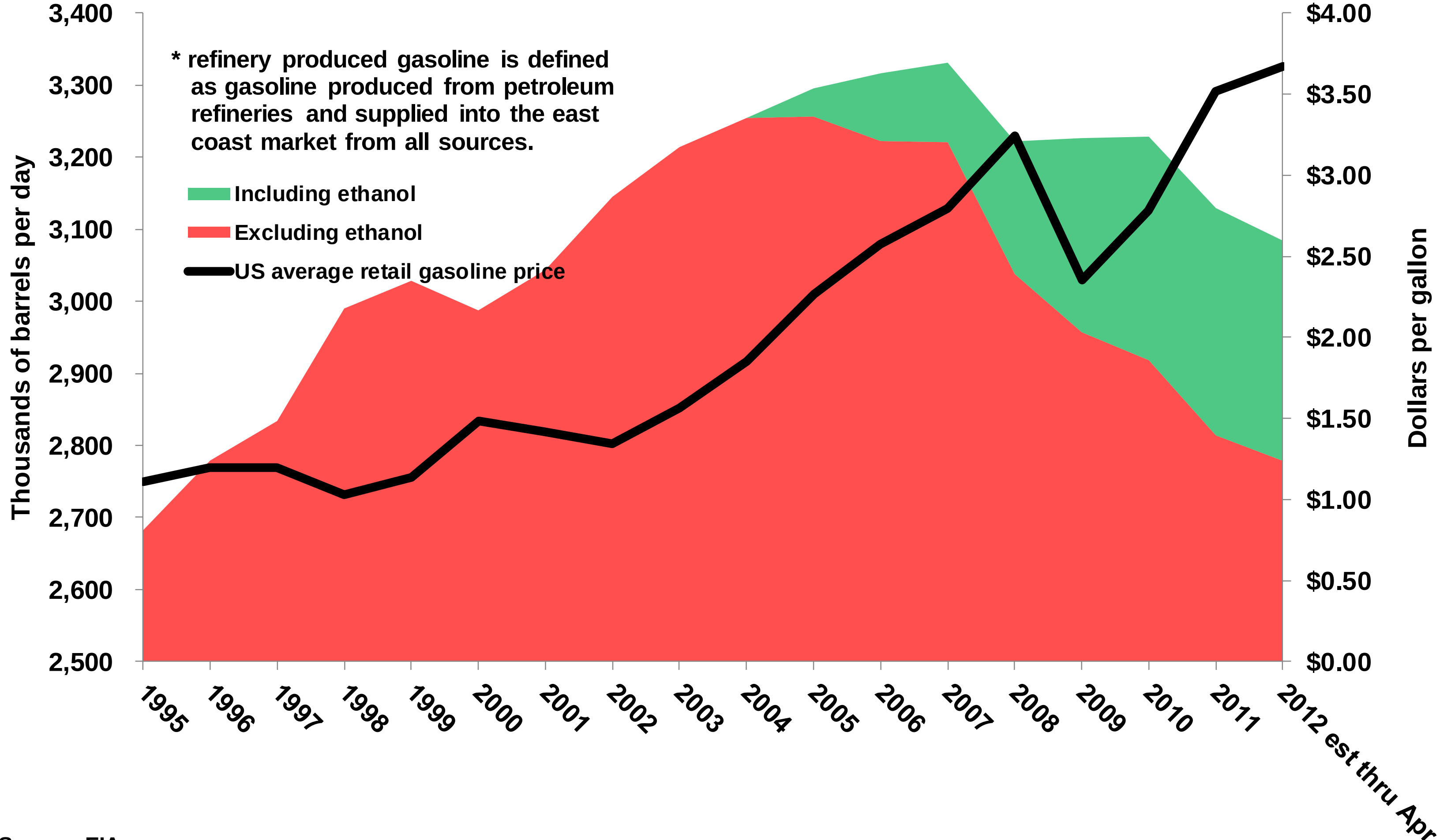
Source: EIA

Northeast and Mid-Atlantic (PADD 1a & b) Gasoline Supply: Down 6% from 2004



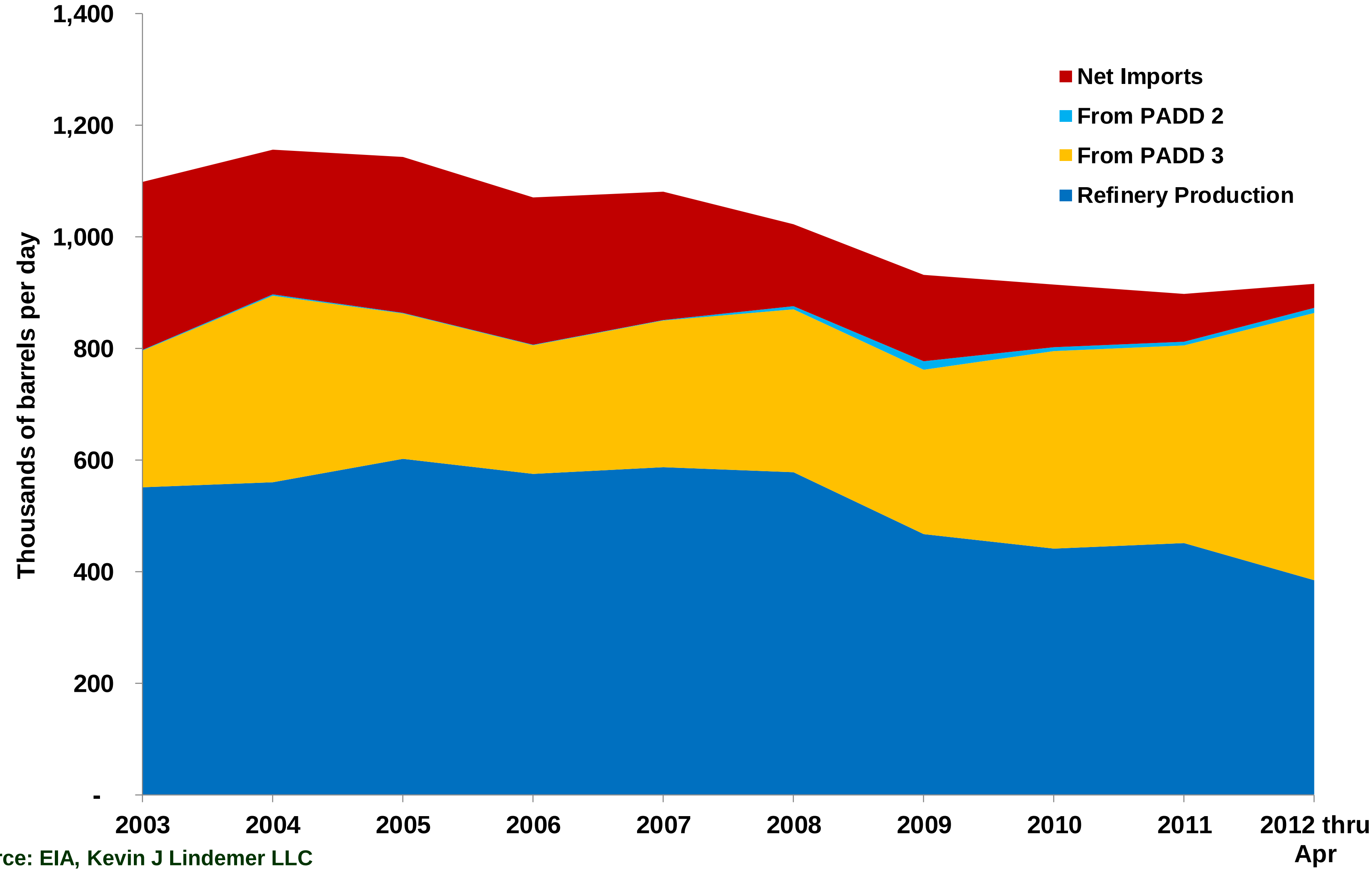
Source: EIA, Kevin J Lindemer LLC

US East Coast (PADD 1) Gasoline Demand: Ethanol has Displaced 10% of Refinery Produced* Gasoline in the Last 6 Years



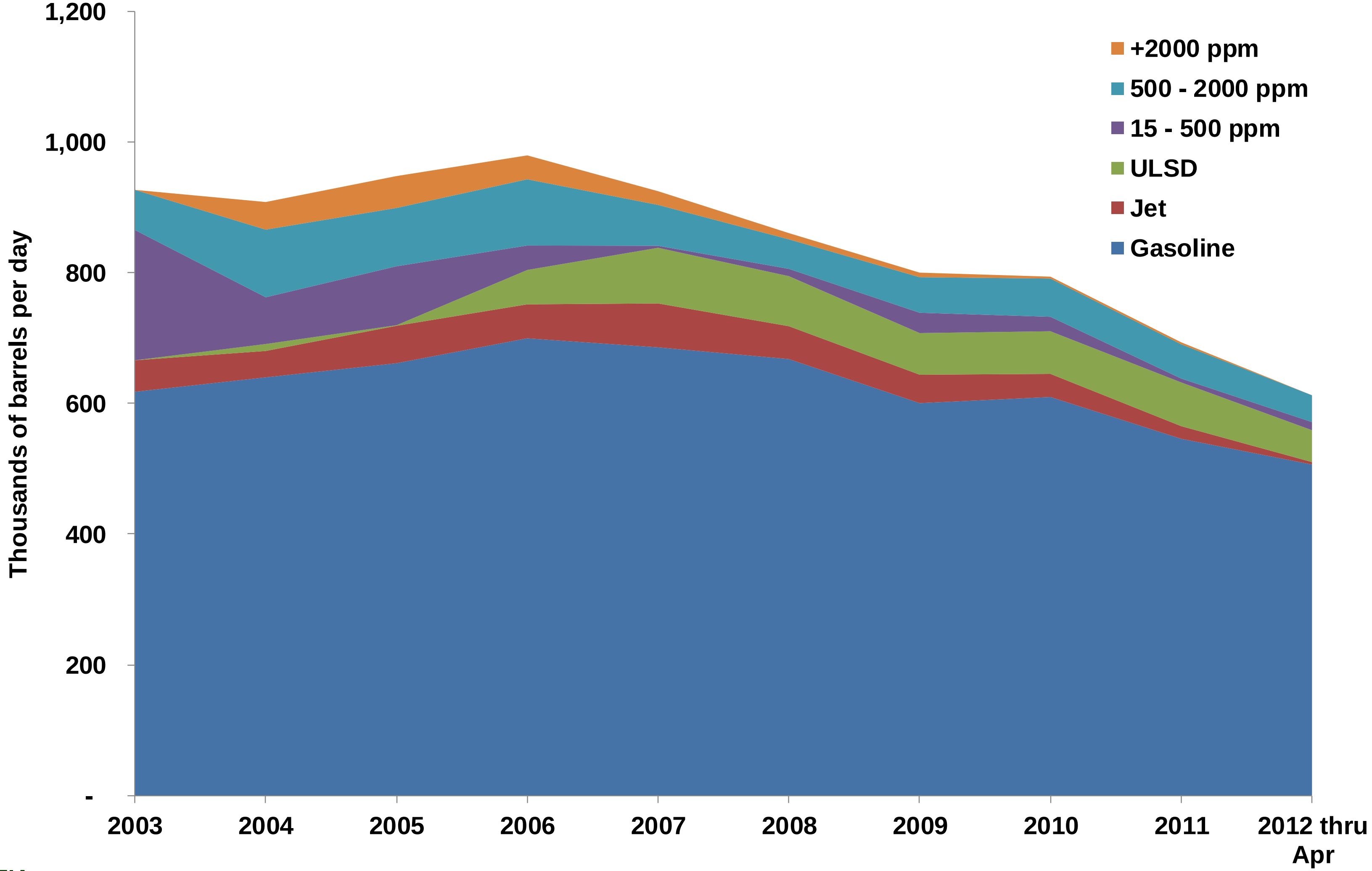
Source: EIA

Northeast and Mid-Atlantic (PADD 1a & b) Jet and Distillate Supply: Down 20% from 2004



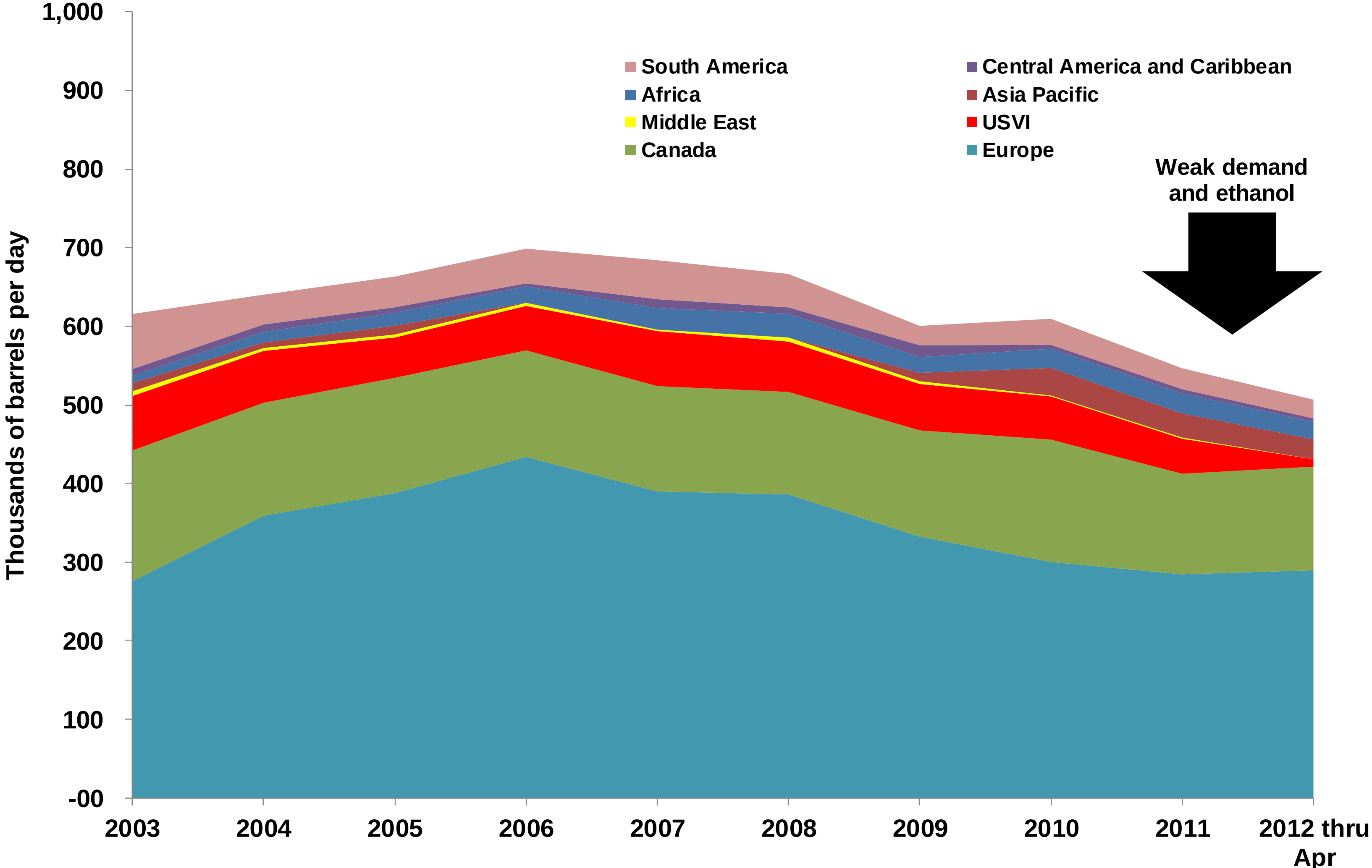
Source: EIA, Kevin J Lindemer LLC

New England and Mid-Atlantic Imports: Down 37% from 2006



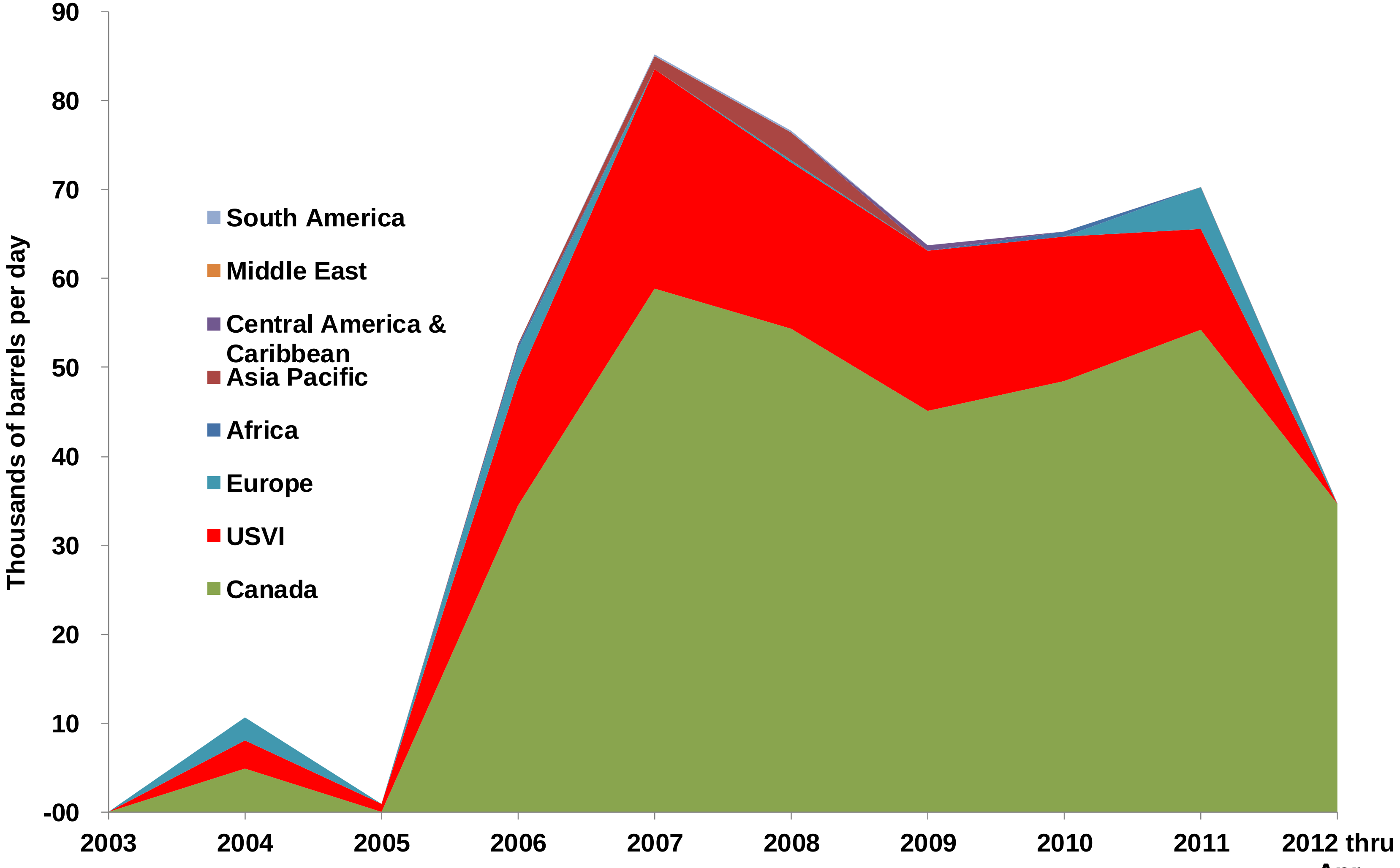
Source: EIA

Mid-Atlantic and New England Gasoline Imports: Europe at the Margin



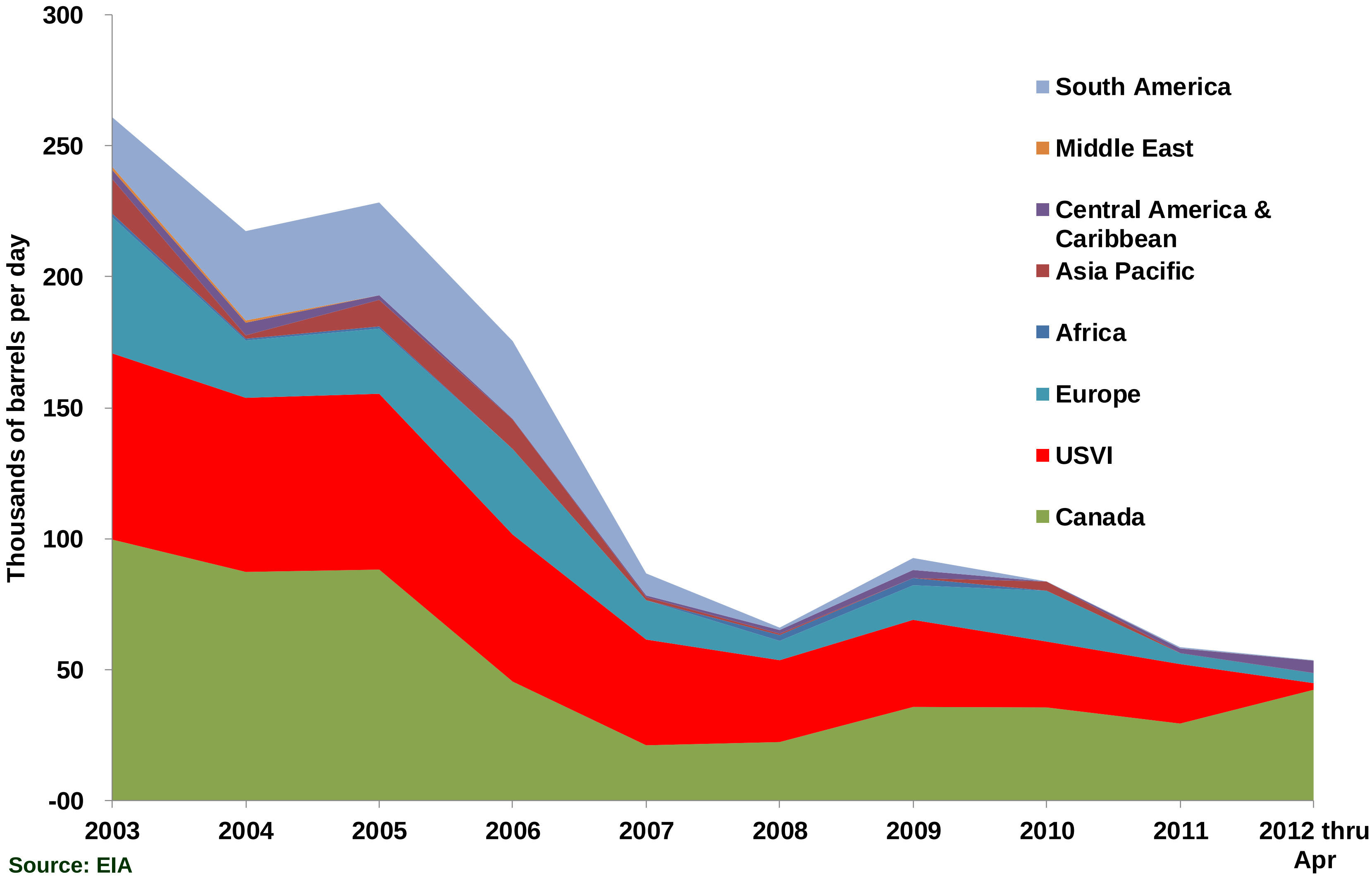
Source: EIA

Mid-Atlantic and New England ULSD Imports: No Long-Haul Supply Needed



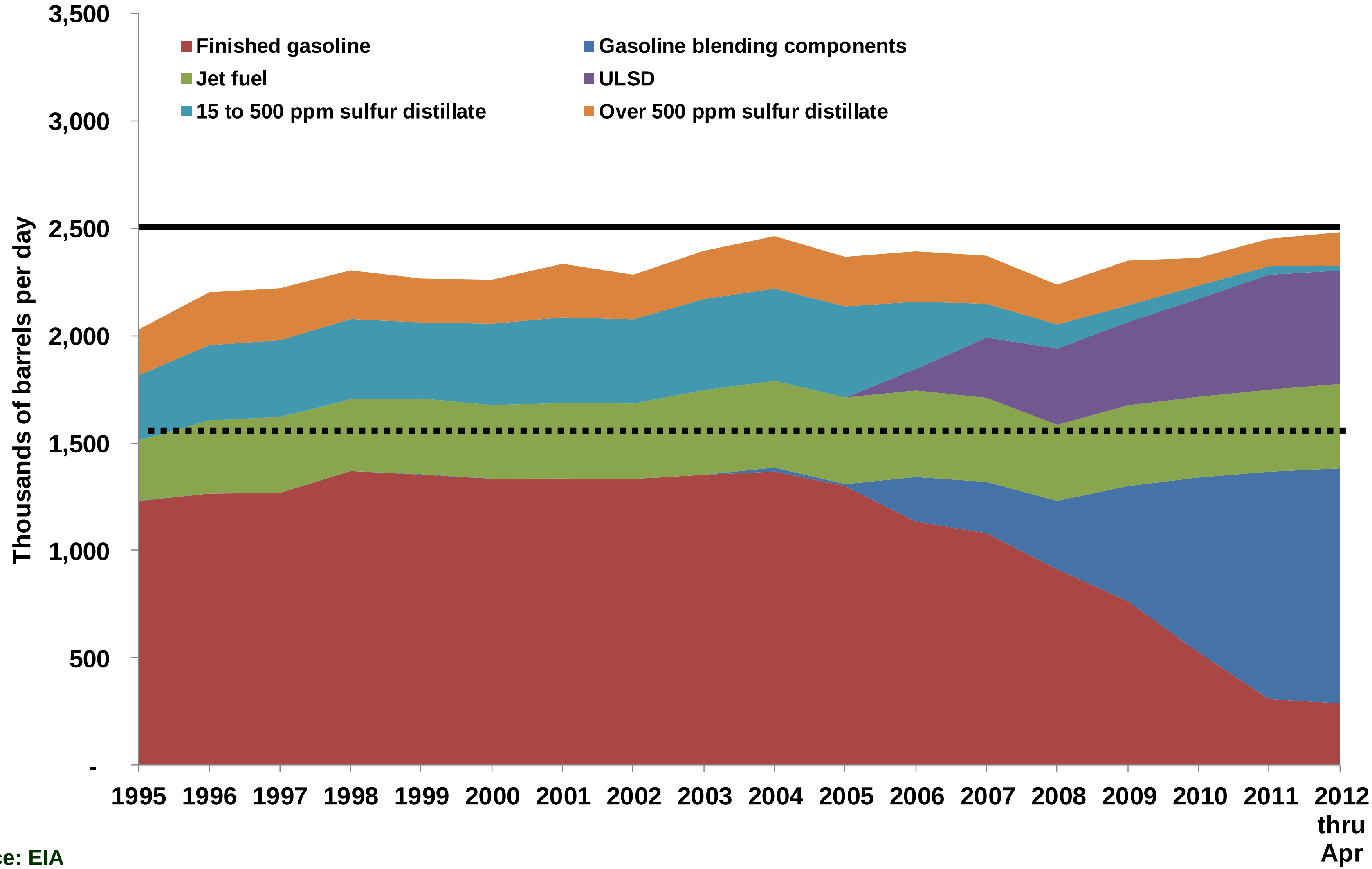
Source: EIA

Mid-Atlantic and New England Imports of +15 ppm Distillate



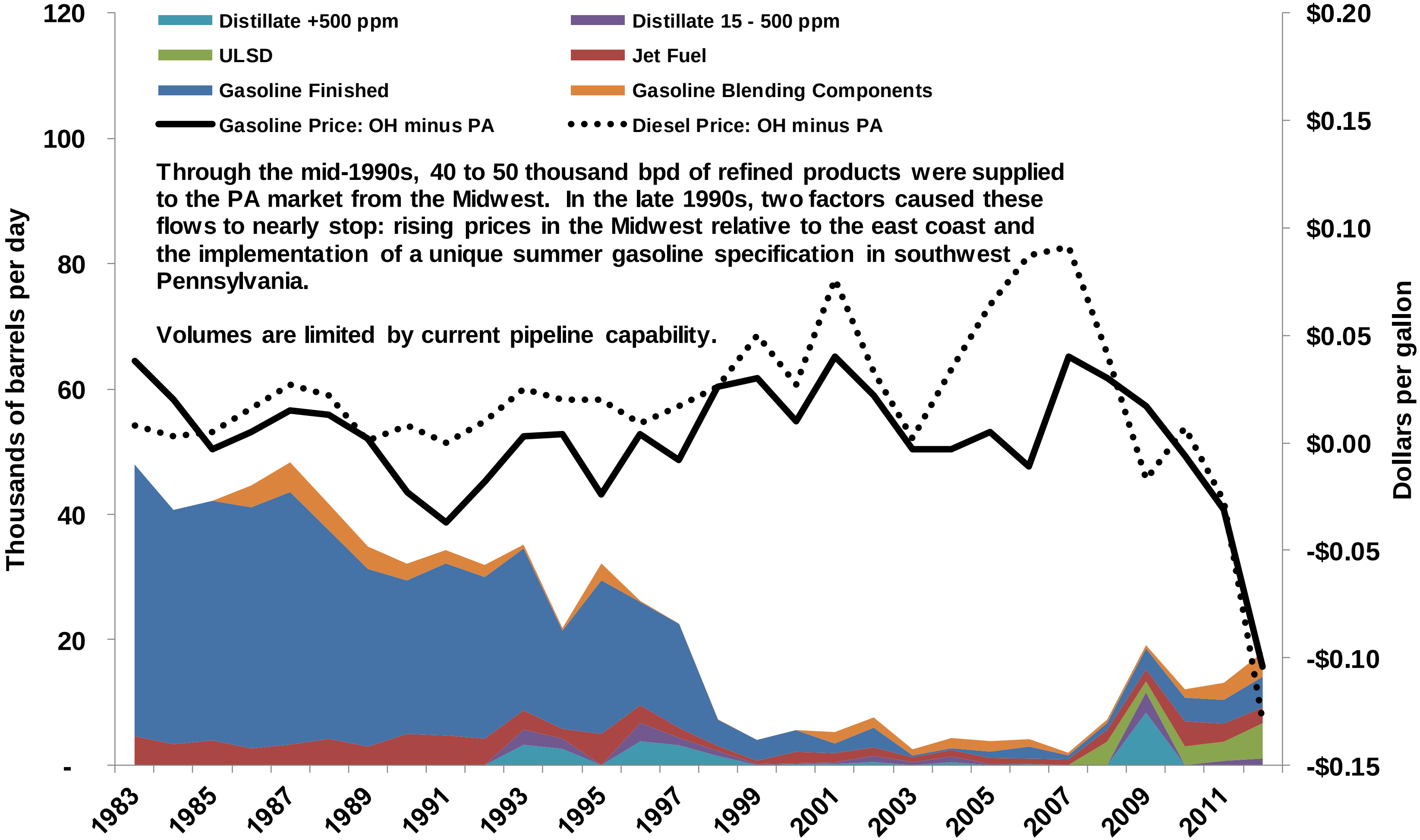
Source: EIA

Pipeline Deliveries from the USGC to the US East Coast: Rising with More to Come



Source: EIA

Refined Products Pipeline Shipments from the Midcontinent to the East Coast: More to Come?

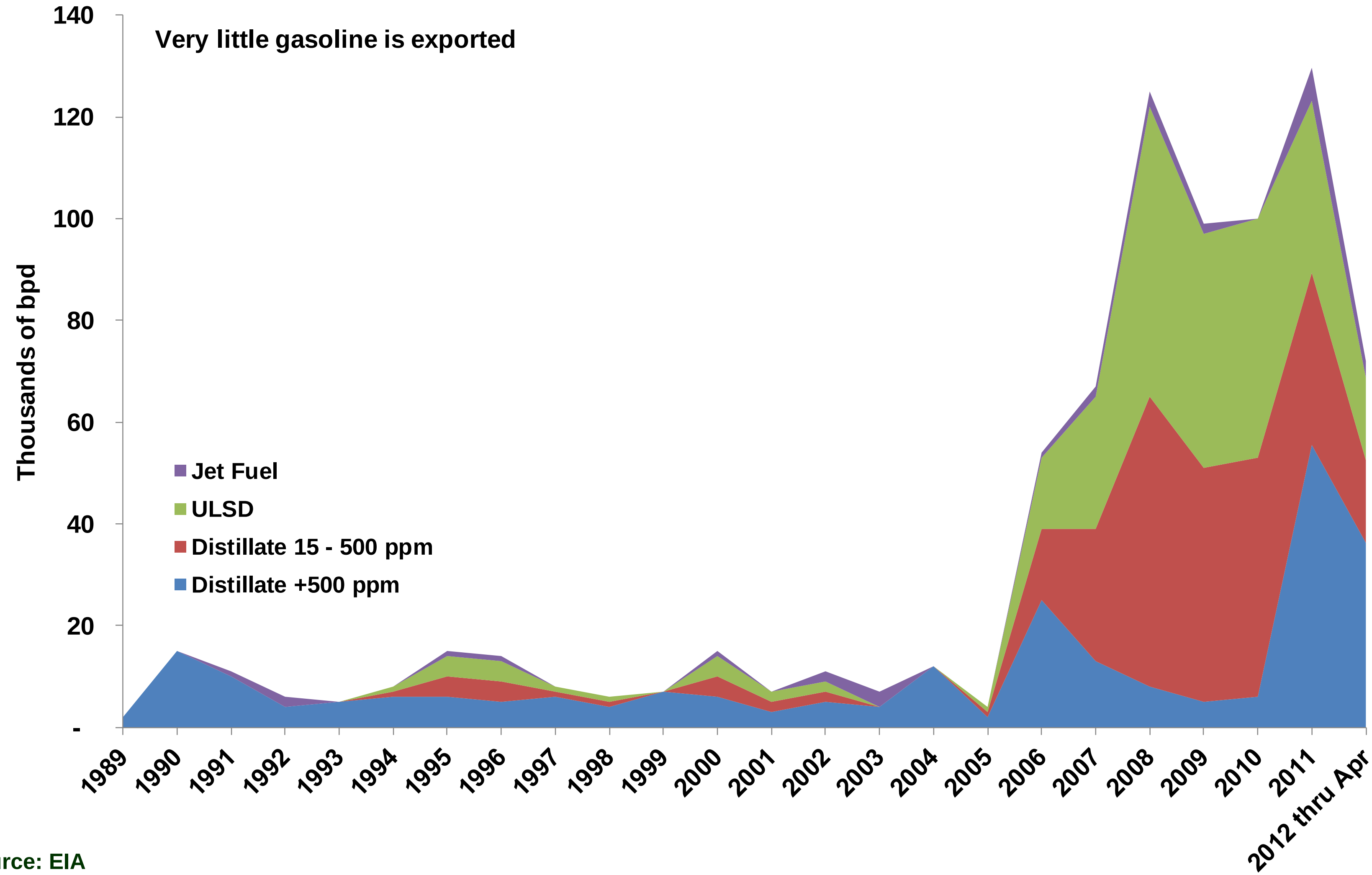


Source: EIA, Kevin J Lindemer LLC

PADDs1 – 3 Refinery Production: Exports are the Alternative to Shutting Down

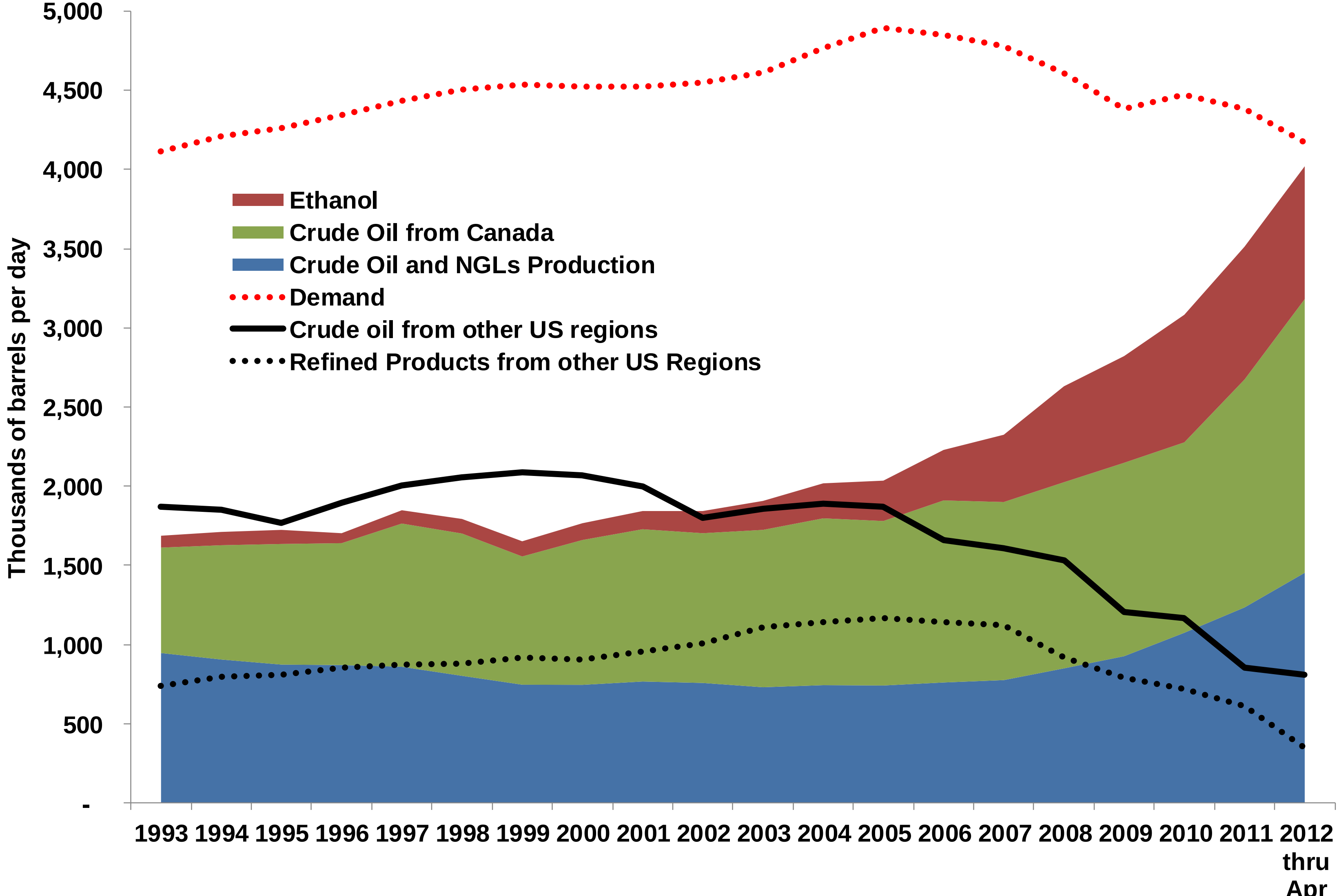
- **PADD 1 – despite refinery closures:**
  - ***Gasoline imports have dropped dramatically***
  - ***Distillate exports are being sustained***
- **PADD 2**
  - ***Imports from PADD 3 have dropped to record lows and continue to fall.***
  - ***Exports to PADD 1 limited by pipeline capability***
  - ***What' next? Exports to Atlantic via USGC? New pipeline capacity to the east? Rail products to the east with ethanol?***
- **PADD 3**
  - ***Exports to the Atlantic are the only alternative***
  - ***Colonial is expanding, but not fast enough***
  - ***Jones Act***
  - ***PADD 2 is now a competing refining center rather than a market***

Distillate Exports from the US East Coast: Despite Refinery Closures



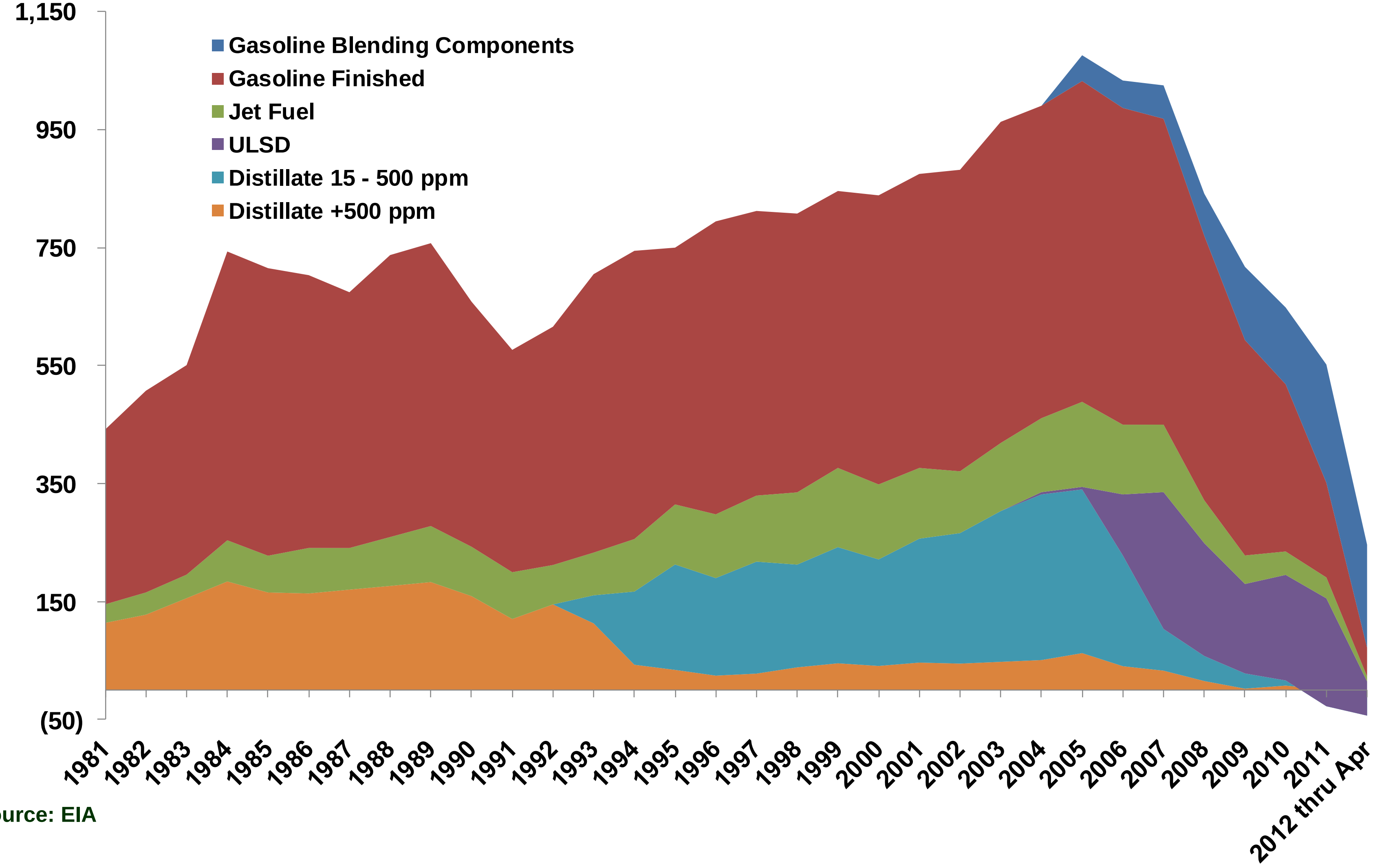
Source: EIA

PADD 2 (midcontinent): Almost Self Sufficient



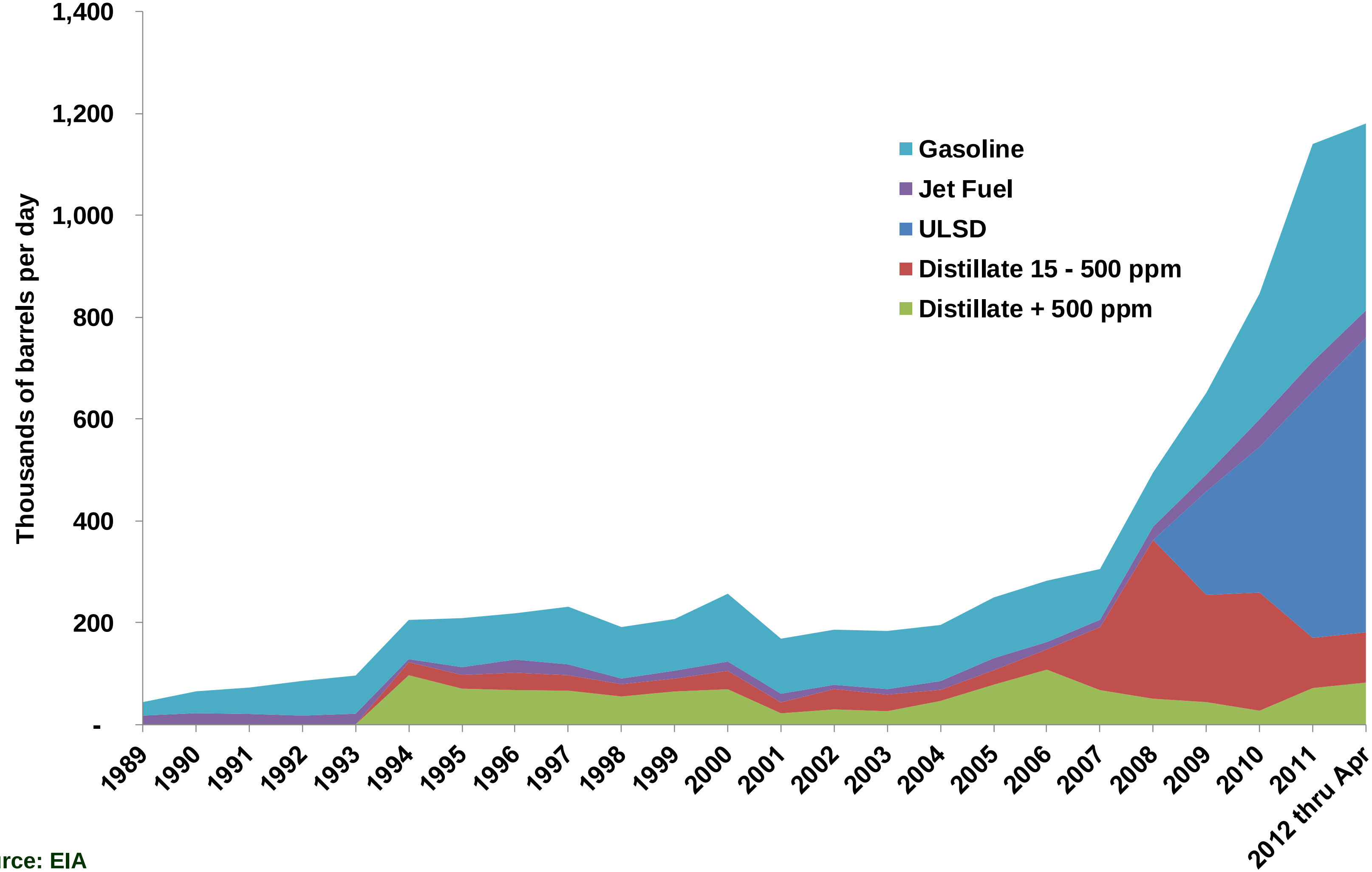
Source: EIA

PADD 2 (midcontinent) Supply from Other US Regions: Moving to Self Sufficiency?



Source: EIA

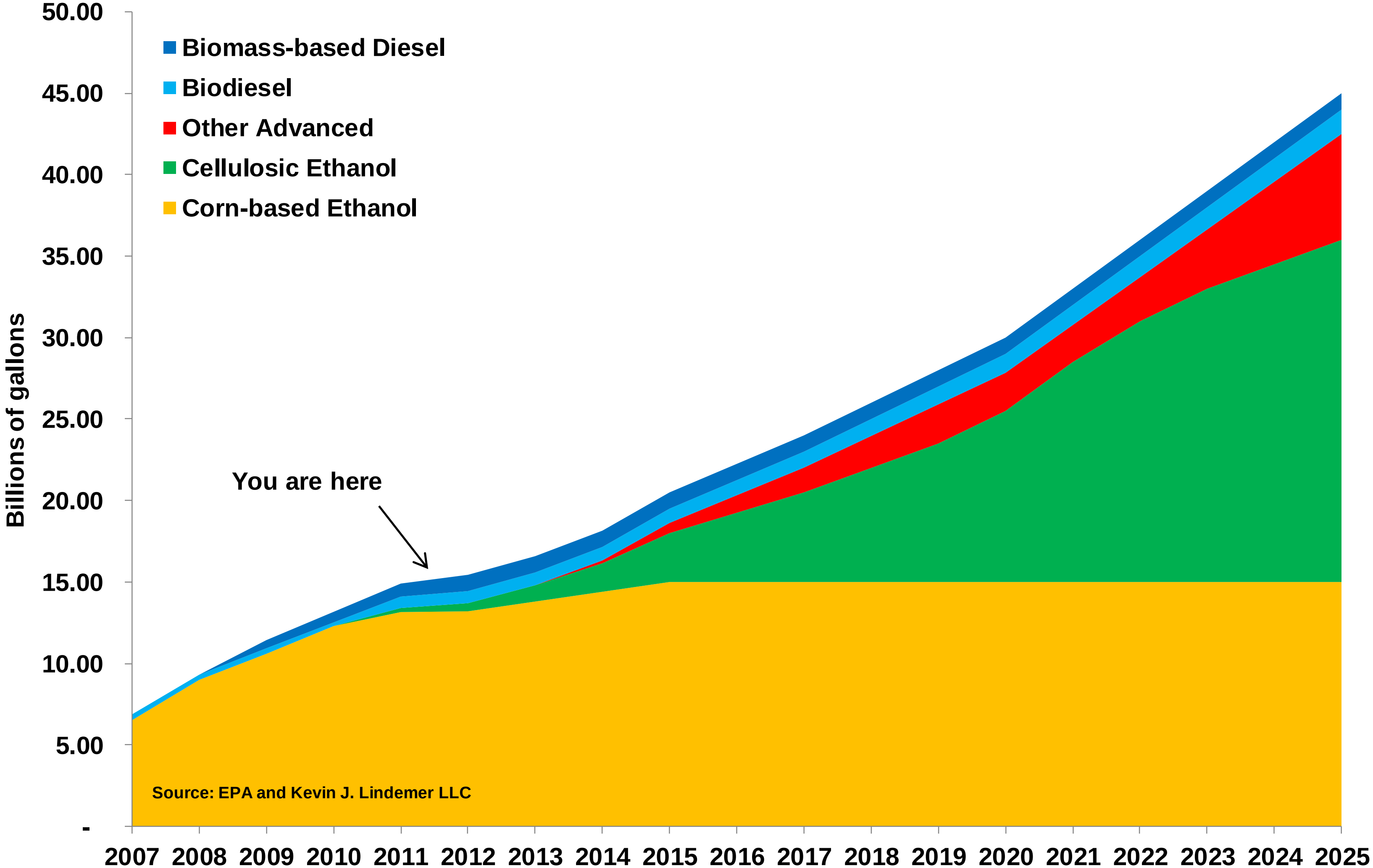
PADD 3 (Gulf Coast) Refined Products Exports: Nowhere to Go Except Offshore



Source: EIA

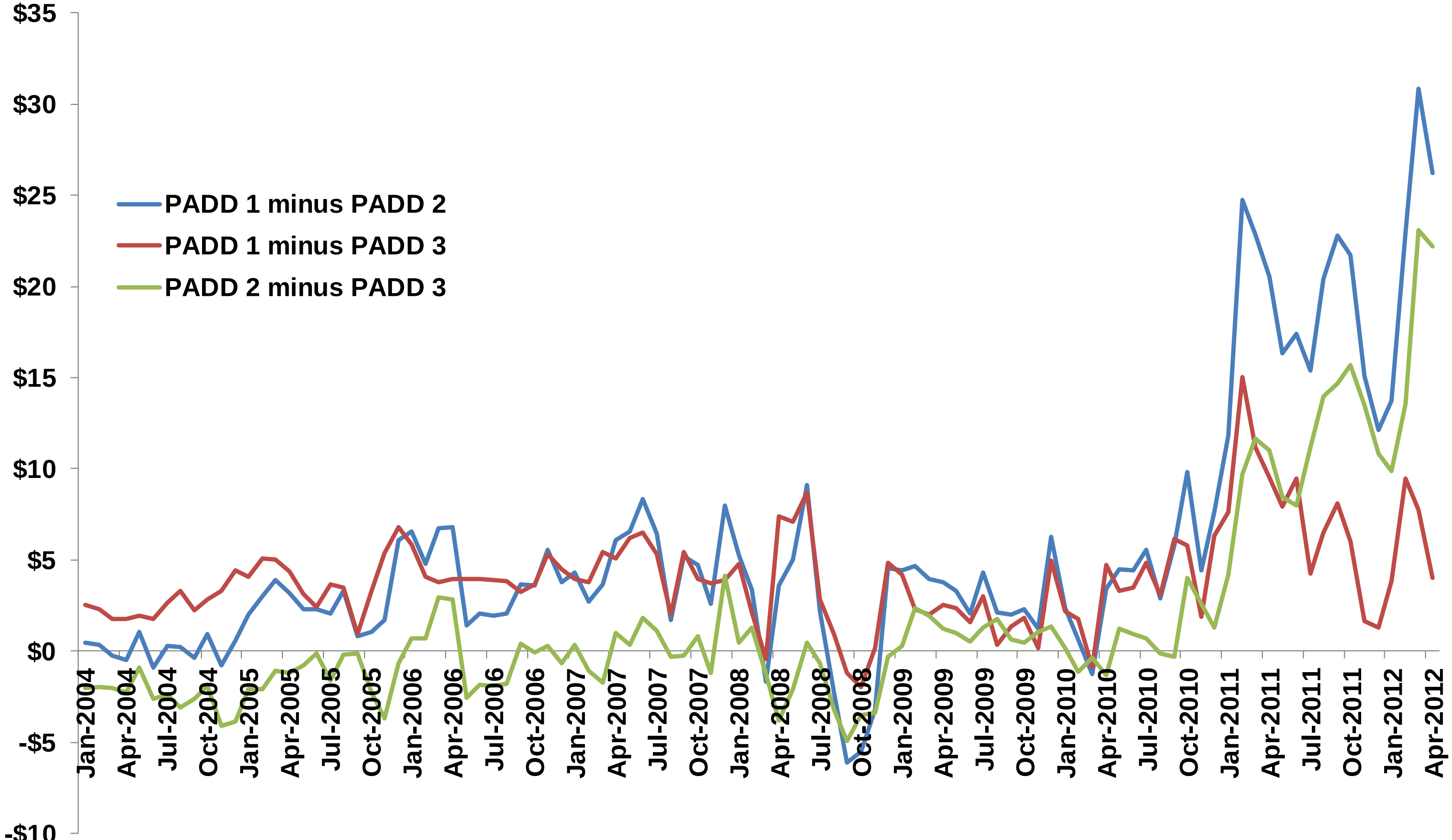
Long-term drivers and implications for the region; Policy, Crude Oil Costs, Demand and Natural Gas

Biofuels Mandates: Volumes Could Triple from Today Under the Current Policy



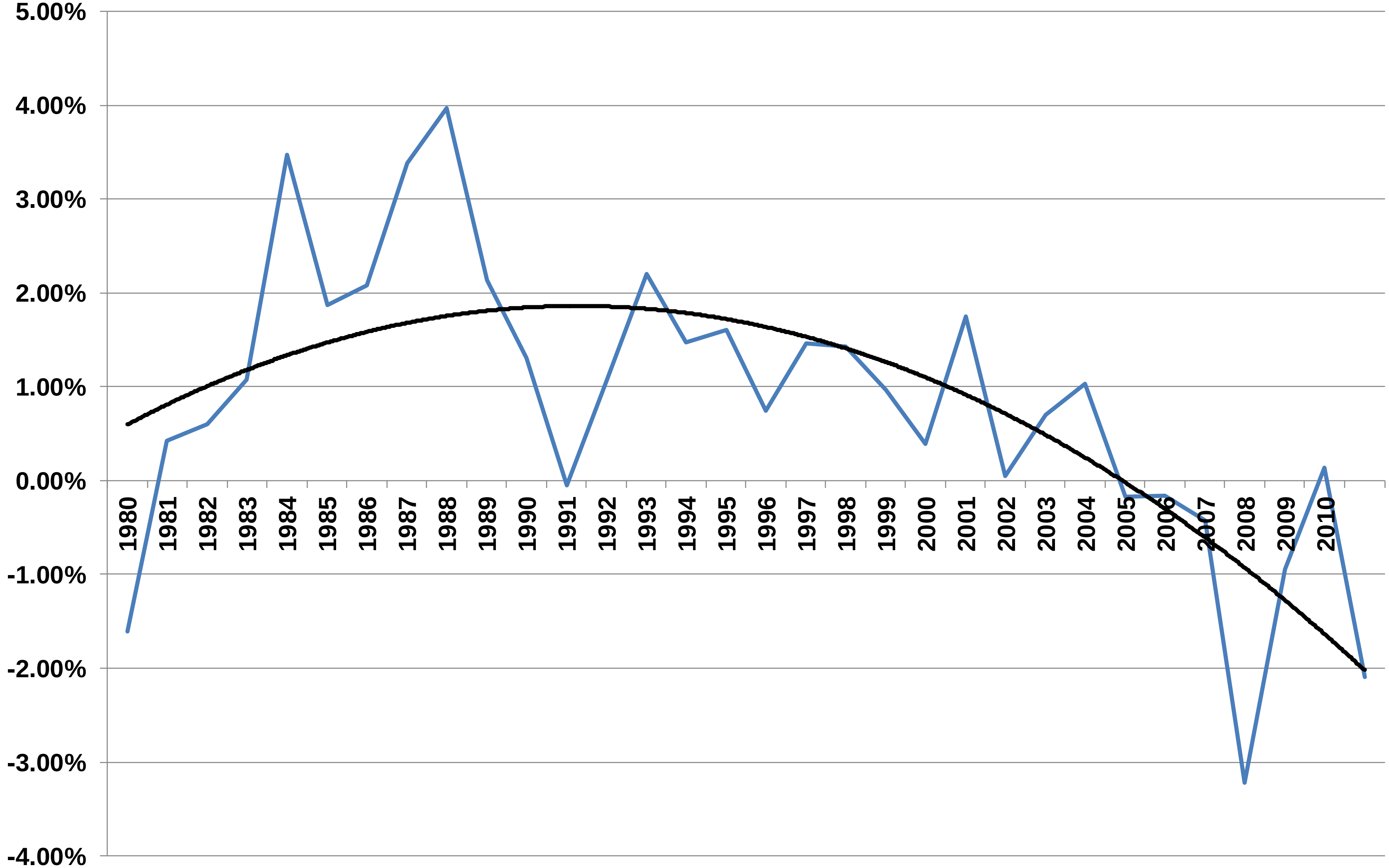
Source: EPA, Kevin J. Lindemer LLC

Cost of Crude Oil Compared to the USGC and Midcontinent: Surplus Driving Logistics and Refining



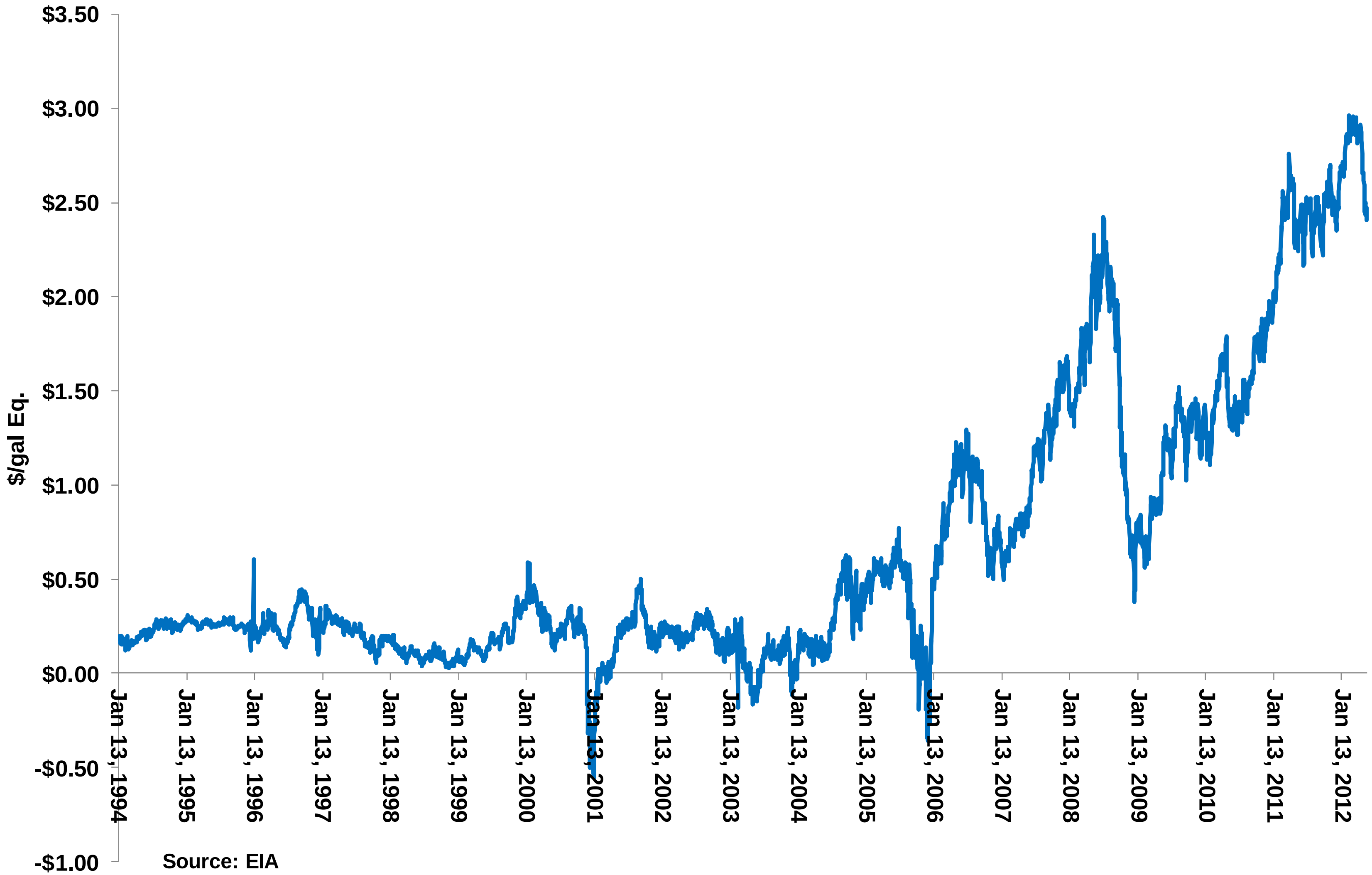
Source: EIA

US Vehicle Miles Traveled per Licensed Driver -- Annual Growth



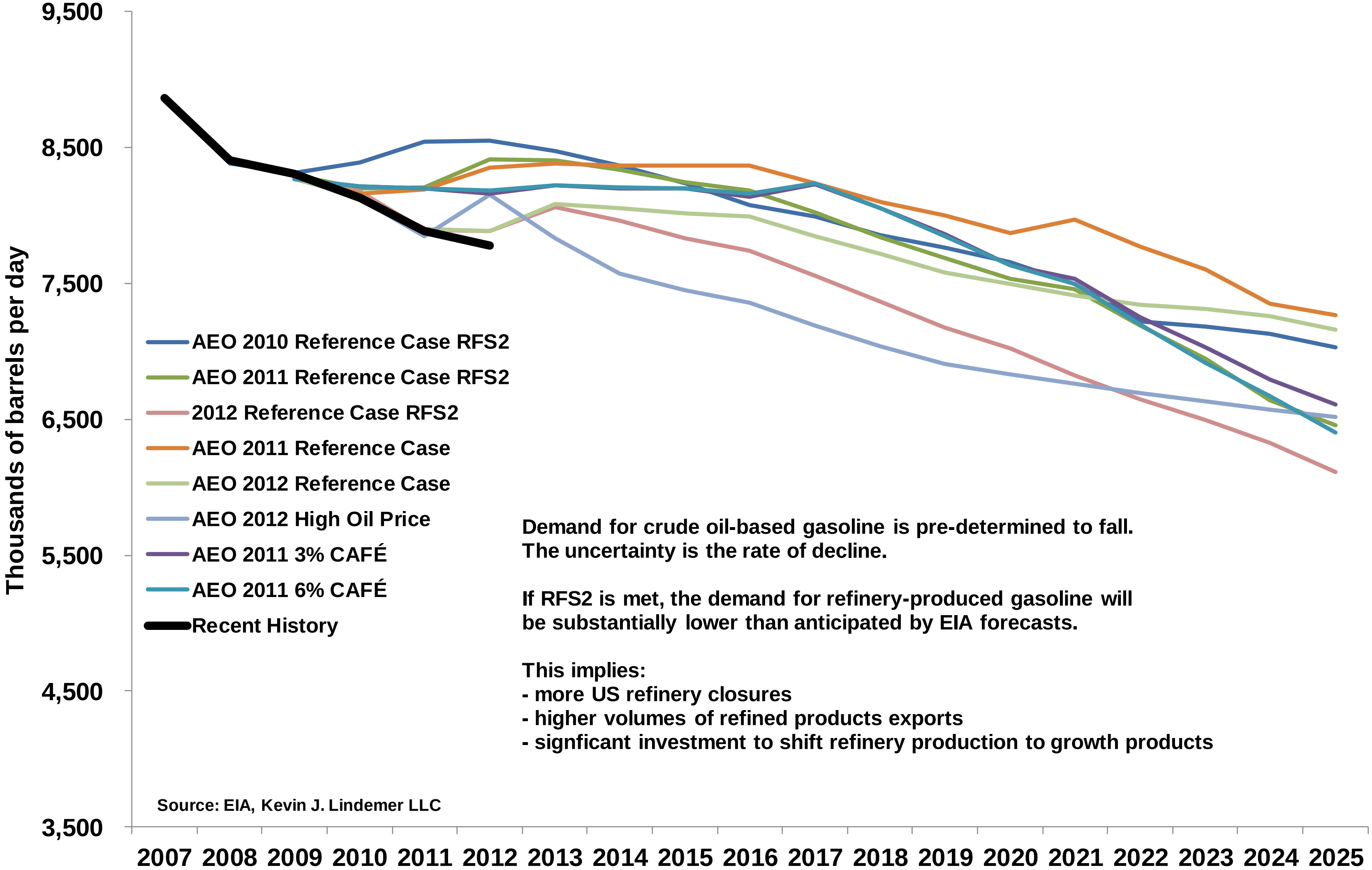
Source: FHA, Kevin J Lindemer LLC

Heating Oil minus Natural Gas 1st Month Contract



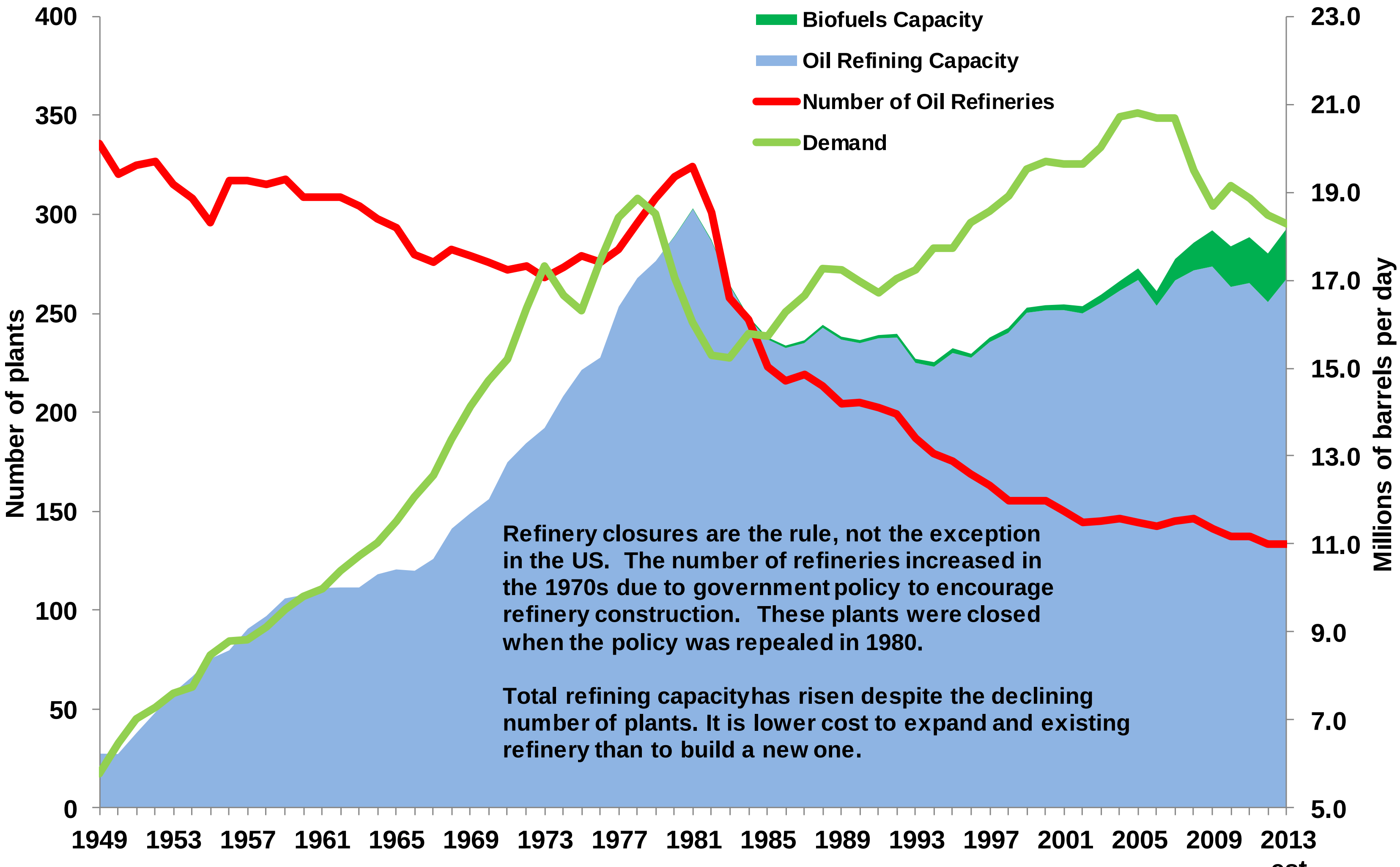
Source: EIA

US Demand for Refinery Produced Gasoline: No Possibility of Long-term Growth?



Refinery closures in a broader context

US Crude Oil Refining: Fewer Refineries, Growing Capacity



Source: EIA, API

Refinery Utilization Rates: East Coast has Significant Surplus Capacity