



California's Petroleum Market Overview and Outlook for Diesel Fuel

California Trucking Association – Bay Area Unit

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Presentation Topics

- Petroleum infrastructure – key elements
- Crude oil – declining production
- Imports – crude oil & refined products forecasted to increase
- Changing demand for diesel fuel – U.S., Europe & California
- Diesel fuel price trends & differences
- Transition to ULSD – will the industry be ready?
- California and EPA diesel – will they be the same?



Petroleum Infrastructure





Petroleum Infrastructure – Key Elements

- The petroleum “infrastructure” consists of several interconnected assets operated by a combination of private and common carrier companies
 - Refineries
 - Pipelines
 - Marine terminals
 - Storage tanks
- Crude oil and petroleum product infrastructure assets are separate and distinct from one another – not interchangeable
- Unlike with the electricity distribution system, Northern California is not directly connected to Southern California



Key Elements - Refineries



- Refineries are a primary hub of logistical activity
 - Raw materials imported & finished products shipped
- Crude oil is received by pipelines and marine vessels
- Process units operate continuously at or near maximum capacity, except during periods of planned maintenance or unplanned outages



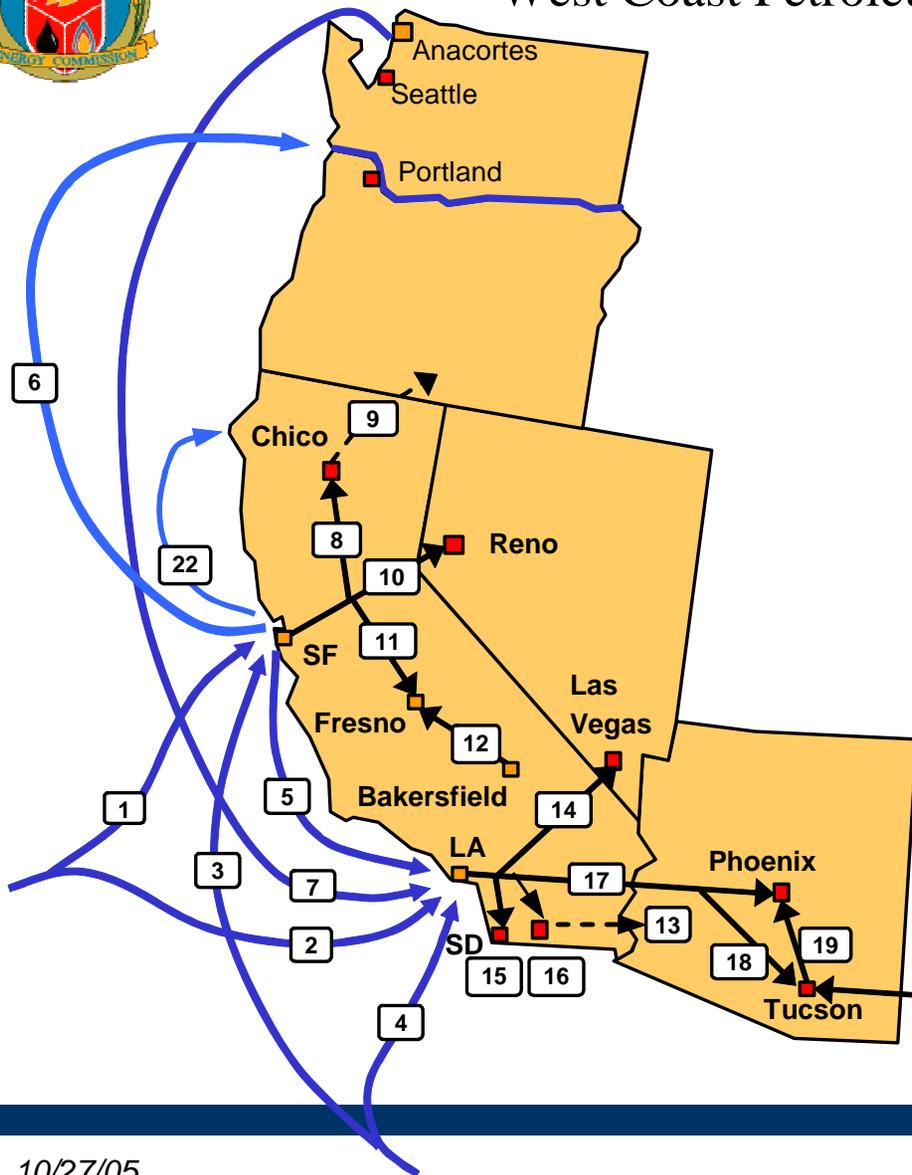
Key Elements – Refineries (cont)

- Output from the refineries is usually placed in intermediate tanks prior to blending the finished products
- The majority of gasoline, diesel and jet fuel is shipped from the refinery by pipeline to over 70 distribution terminals
- Most of the refineries dispense a smaller portion of their output into tanker trucks that are loaded at the refinery





West Coast Petroleum Flows



- 1 Foreign Imports into Northern California
- 2 Foreign Imports into Southern California
- 3 US Gulf Coast Imports into Northern California
- 4 US Gulf Coast Imports into Southern California
- 5 Ship/Barge - San Francisco to Los Angeles
- 6 Ship/Barge - San Francisco to Portland
- 7 Ship/Barge - Washington to Los Angeles
- 8 Kinder Morgan - San Francisco to Chico
- 9 Truck - Chico into Southern Oregon
- 10 Kinder Morgan - San Francisco to Reno
- 11 Kinder Morgan - San Francisco to Fresno
- 12 Kinder Morgan - Bakersfield to Fresno
- 13 Truck - Imperial into Western Arizona
- 14 Kinder Morgan - Los Angeles to Las Vegas
- 15 Kinder Morgan - Los Angeles to San Diego
- 16 Kinder Morgan - Los Angeles to Imperial
- 17 Kinder Morgan - Los Angeles to Phoenix
- 18 Kinder Morgan - Los Angeles to Tucson
- 19 Kinder Morgan - Tucson to Phoenix
- 20 Kinder Morgan - El Paso to Tucson
- 21 Longhorn Pipeline - Houston to El Paso
- 22 Ship/Barge - San Francisco to Eureka



Key Elements – Pipelines

- Pipelines are used throughout the distribution infrastructure to interconnect key elements
- Intra-state pipelines are used to convey petroleum products within California's borders
- Interstate pipelines are used to export transportation fuels to Arizona and Nevada
 - NV – Nearly 100% of supply in 2004 (153 thousand barrels per day)
 - AZ – Nearly 62% of supply in 2004 (147 thousand barrels per day)
- Pipelines usually include pump stations, break-out tanks, storage tanks and distribution terminals
- Pipelines normally traverse multiple jurisdictions and require longer periods of time to acquire all of the necessary permits



Key Elements – Marine Facilities

- Marine facilities are located in sheltered harbors with adequate draught to accommodate typical sizes of petroleum product tankers and crude oil vessels
- Wharves usually have adjacent storage tanks that are used to temporarily hold petroleum products prior to transfer to a subsequent location
- Most refiners operate a proprietary dock
- Third party storage provides access to majors and independents
 - Kinder Morgan
 - Kaneb Terminals
 - Chemoil
 - Petro-Diamond





Key Elements – Storage Tanks

- Storage tanks are vital to the continuous flow of petroleum products into and through California
- Tanks are located at docks, refineries, terminals and tank farms
- Tanks serve different storage purposes:
 - Unload marine vessels
 - Receive pipeline shipments
 - Feed truck loading facilities
 - Hold inventories in advance of planned maintenance
 - Strategic storage that can be used for emergencies or periods of rapid price increases





Key Elements – Storage Tanks (cont)

- “Dedicated” tanks are normally used for only one type of petroleum product
- “Drain dry” tanks can be used to store different types of petroleum products throughout the year, increasing versatility and flexibility for the distribution infrastructure
- Renovation of existing or construction of new storage tanks will be necessary to adequately handle the additional influx of imports foreseen over the next 10 years and beyond
- Most, if not all, of these projects will occur in locations with existing tanks



Crude Oil



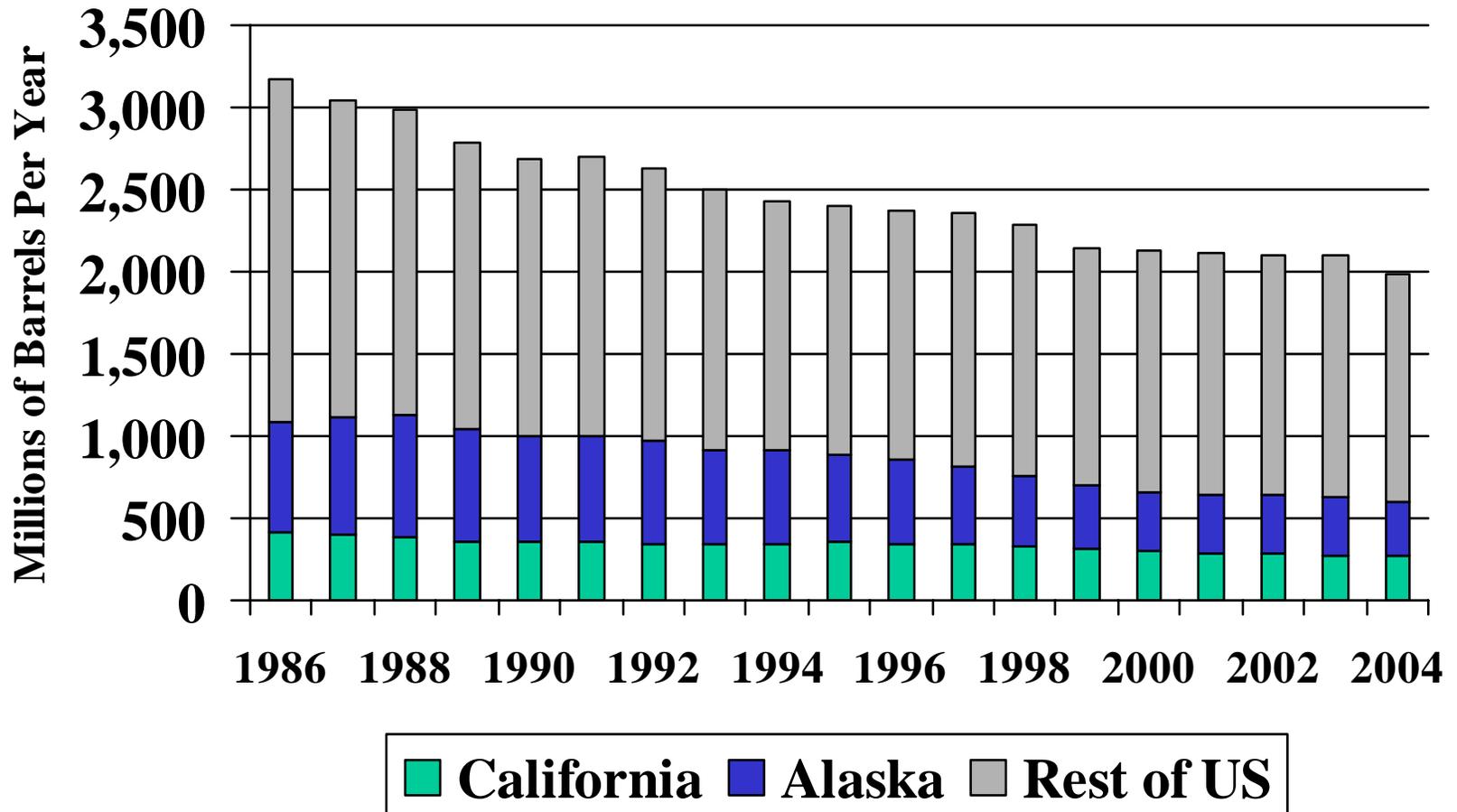


Crude Oil - Overview

- Global demand for crude oil estimated to top 84 million barrels per day for 2005
- U.S. refiners processed over 15.5 million barrels per day during 2004
 - Crude oil imports 10 million barrels per day, 65 % of supply
- California refiners processed 1.8 million barrels per day during 2004
 - California 42% (750 TBD)
 - Foreign 36% (652 TBD)
 - Alaska 22% (388 TBD)
- Declining California production will be replaced with crude oil delivered by marine vessel
- Crude oil processing by California refineries expected to gradually increase, referred to as “refinery creep”

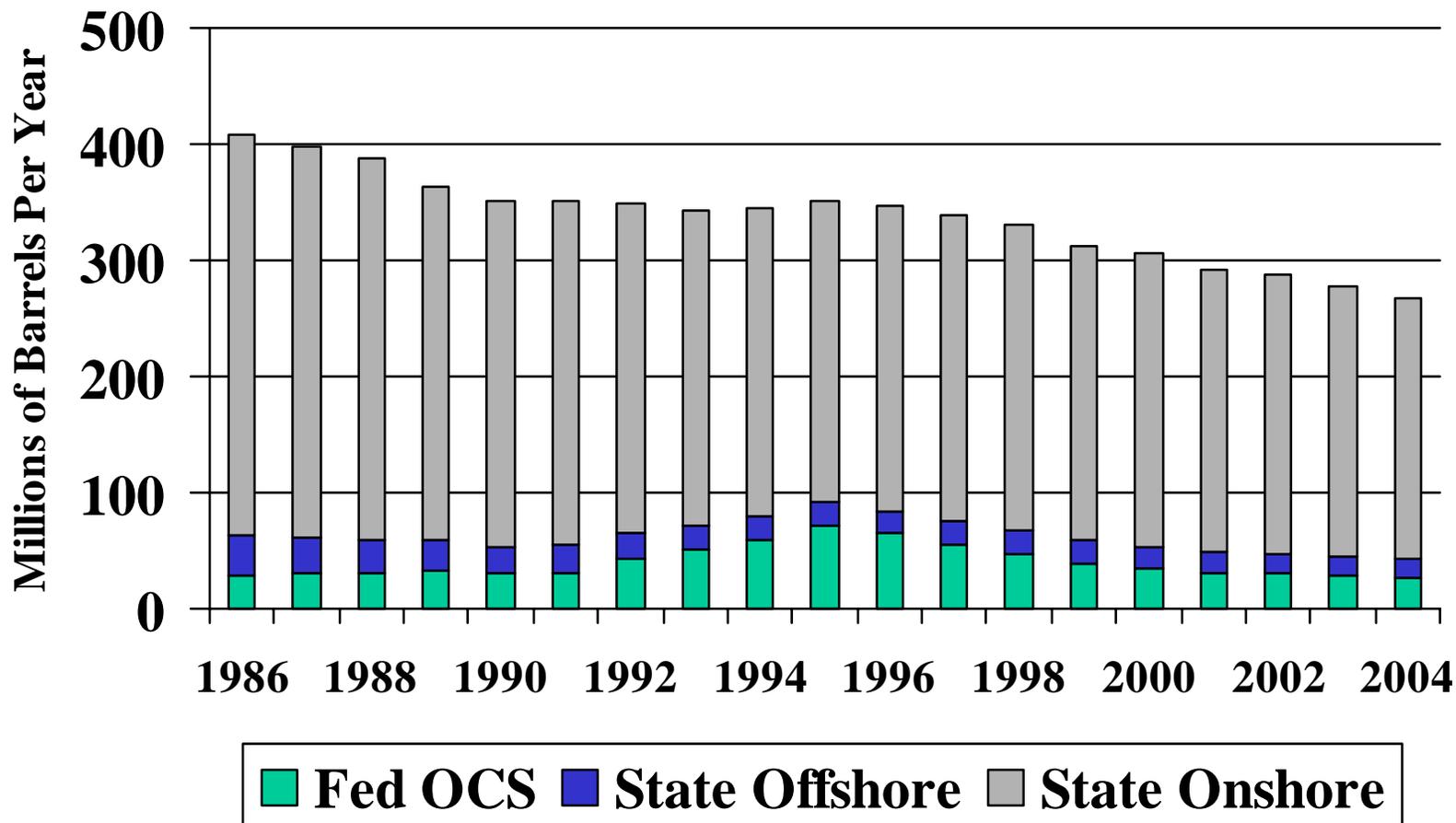


United States Oil Production 1986 to 2004





California Oil Production 1986 to 2004





Crude Oil Production

- 2004 U.S. crude oil production 1.98 billion barrels or 5.4 million barrels per day
- 2004 California crude oil production 268 million barrels or 732 thousand barrels per day (TBD)
 - 4th largest U.S. crude oil producer behind Louisiana, Texas, and Alaska
 - 43 % enhanced recovery, mostly steam injection
- California crude oil production has declined 34 % since 1986, Alaska 51 % and the rest of U.S. by 34 %
 - Alaska output remained steady between 2000 and 2003, reversing a declining trend that had continued for a decade
 - Although Alaska output declined by nearly 7 % last year
- California crude oil production declined 19 % between 1998 and 2004, despite the fact that the value of oil increased by 210 %

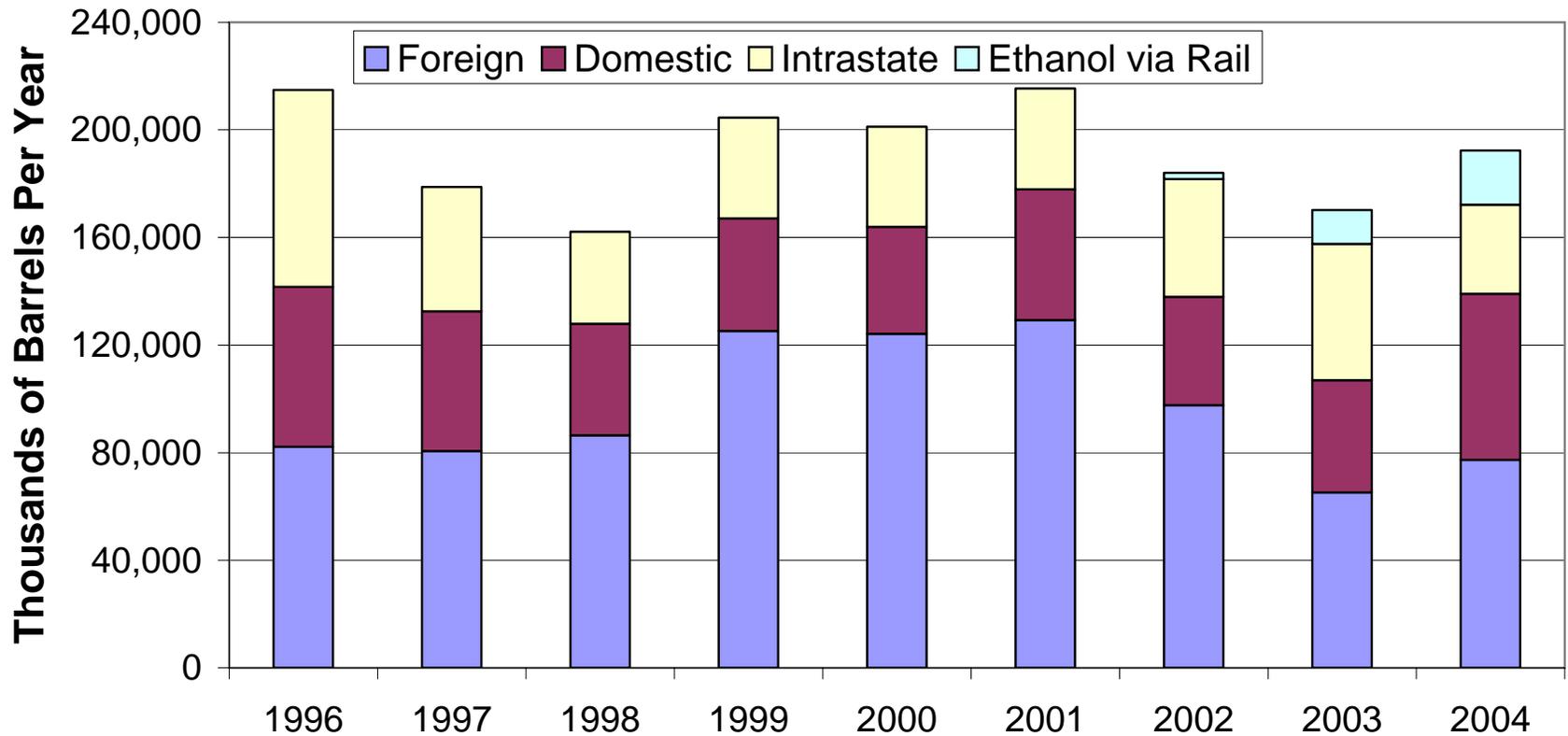


Imports & Exports





California Petroleum Combined Movements Refinery Feedstocks, Blending Components and Finished Products (Excludes Crude Oil) 1996 through 2004





California Refined Products Imports & Exports - Historical

- California shifted from a net exporter of finished petroleum products (transportation fuels) by marine vessel to a net importer in 1997
- Imports of petroleum products are generally increasing while exports are continuing to decline
 - Combined marine imports increased by 61% between 1996 and 2001 before declining 25% between 2001 and 2004
 - 103 million barrels in 2004 or 281 thousand barrels per day (TBD)
 - Combined marine exports declined by 36% between 1996 and 2004
 - 36 million barrels in 2004 (98 TBD)

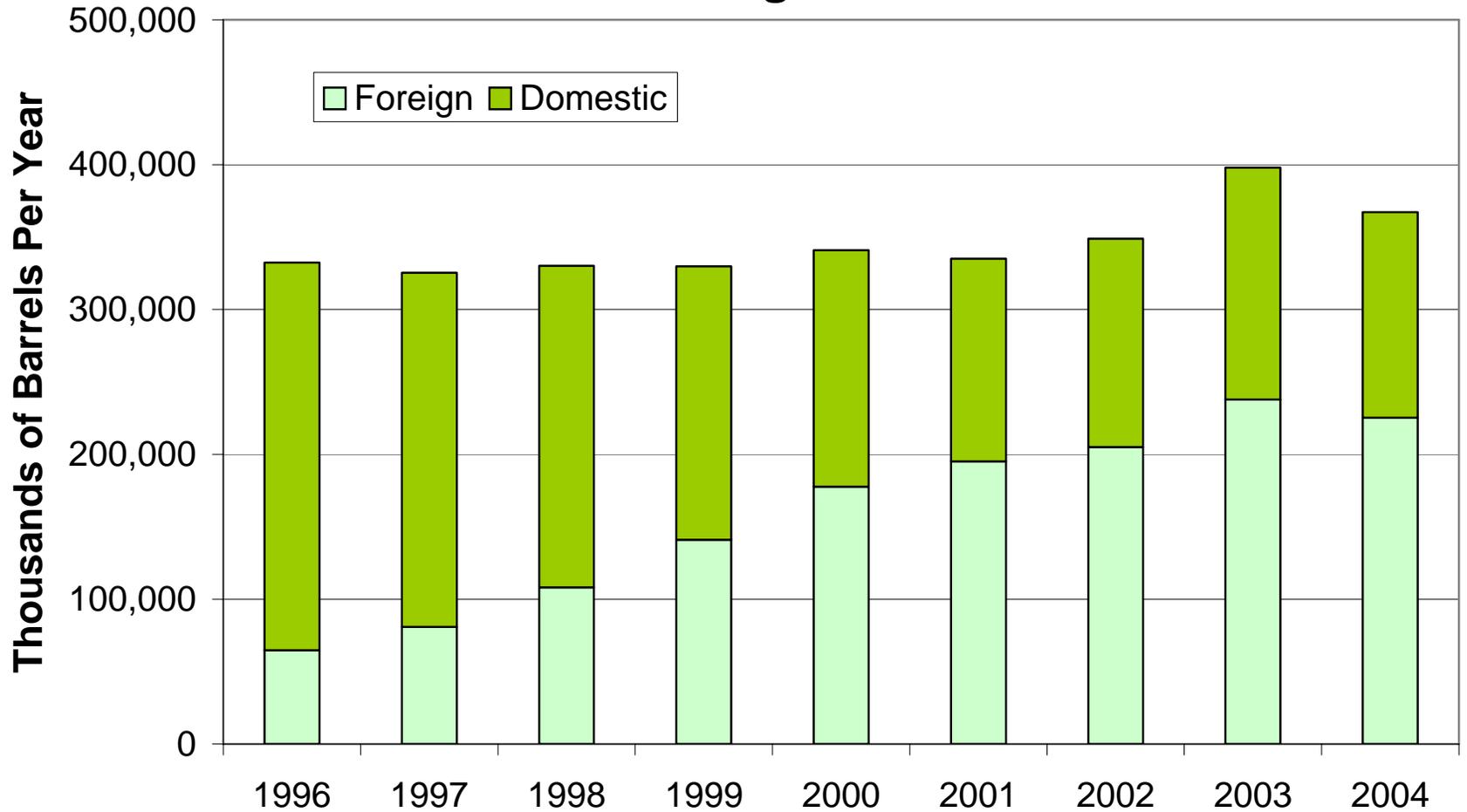


California Refined Products Projected Imports

- Annual production increase by California refiners, or “refinery creep,” projected to be 0.5%
- Base case demand forecast -- clean fuels imports increase over the 2003 level by
 - 3.0 billion gallons in 2025
 - 2.1 billion gallons in 2015
- Alternative forecast – clean fuels imports increase by
 - 3.8 billion gallons in 2015
 - 5.8 billion gallons in 2025



California Crude Oil Imports 1996 through 2004





California Crude Oil Imports – Historical

- Imports of crude oil have increased as California crude production fell and refineries processed additional oil
- Total imports of crude oil have only increased 10.5 % between 1996 and 2004
- Imports of Alaska crude oil declined a total of 47 % between 1996 and 2004
- The largest increase has been for foreign crude oil imports
 - 16.8 % per year increase
- Total imports of crude oil in 2004 declined 7.8 % compared to 2003
 - Refinery maintenance work greater than normal resulted in a decline of crude oil processing for the year



California Crude Oil Imports - Projected

- Crude oil extraction projected to decline at average rate over the last 20 years: 2% per year
- Refinery input projected to increase at the average rate of growth in the capacity to process crude oil for all California refiners from 1996 to 2004, around 0.3% per year
- Crude oil imports are projected to increase from 380 million barrels per year in 2004 to 459 million barrels in 2015 and to 522 million barrels by 2025
- If the crude oil extraction rate is greater (3.5%) and the capacity to process crude oil increases at a higher rate (0.6%) then crude oil imports will increase to 514 million barrels in 2015 and 612 million barrels by 2025

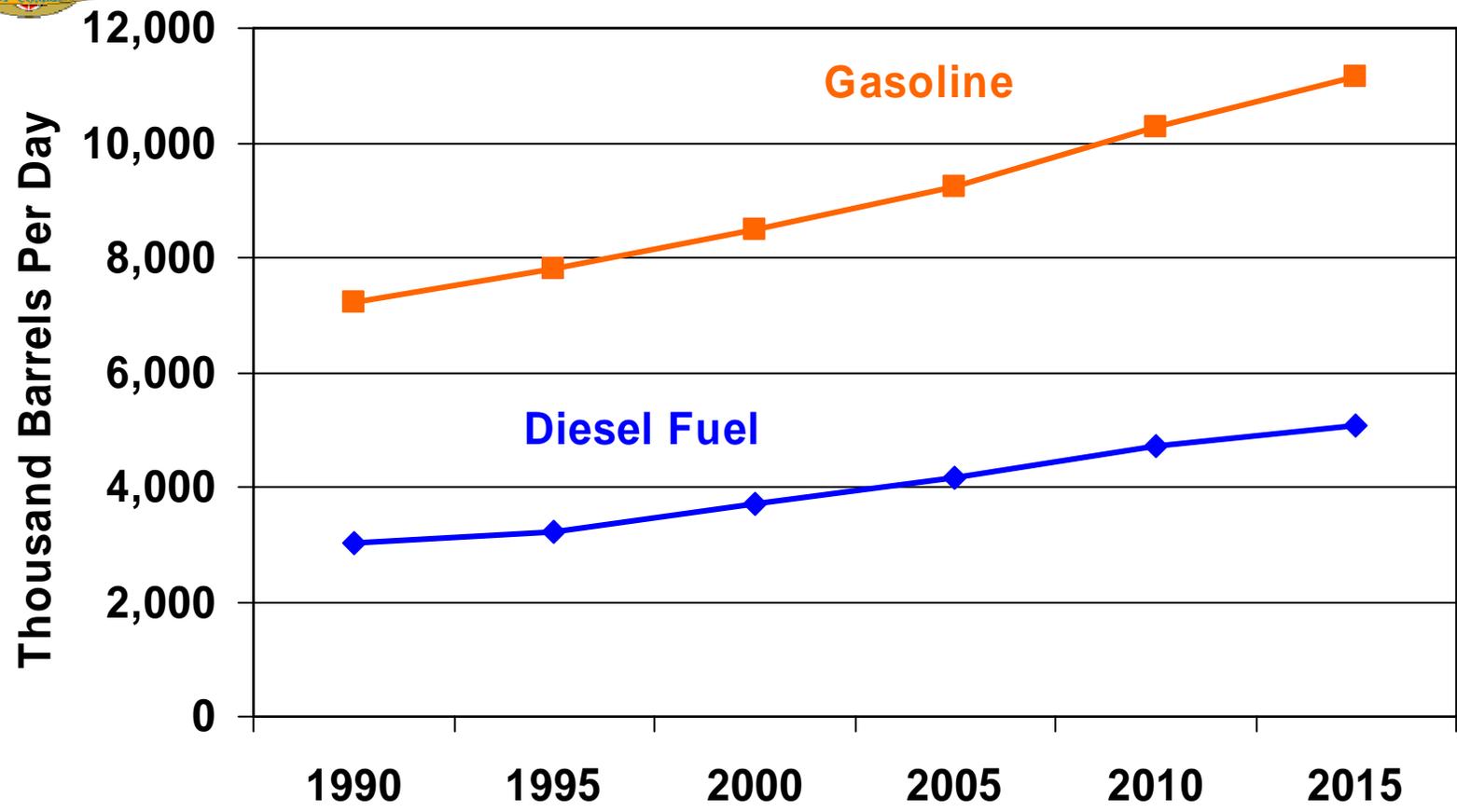


Transportation Fuel Demand Historical & Forecast





U.S. Transportation Fuel Demand – Historical & Forecast

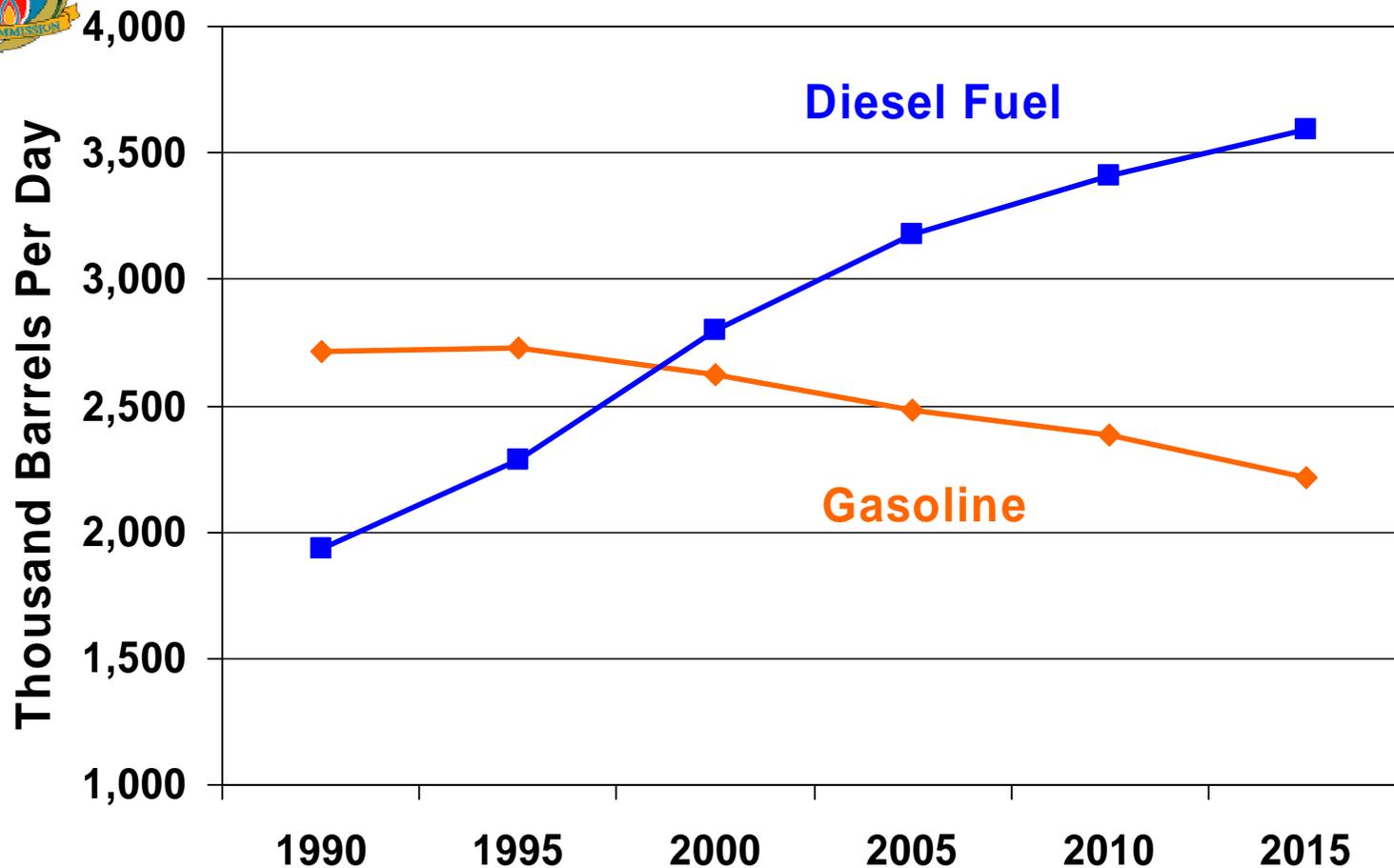


U.S. gasoline demand greater than diesel fuel & forecast to increase at faster rate.

Source: EIA Annual Energy Outlook 2005



Europe Transportation Fuel Demand

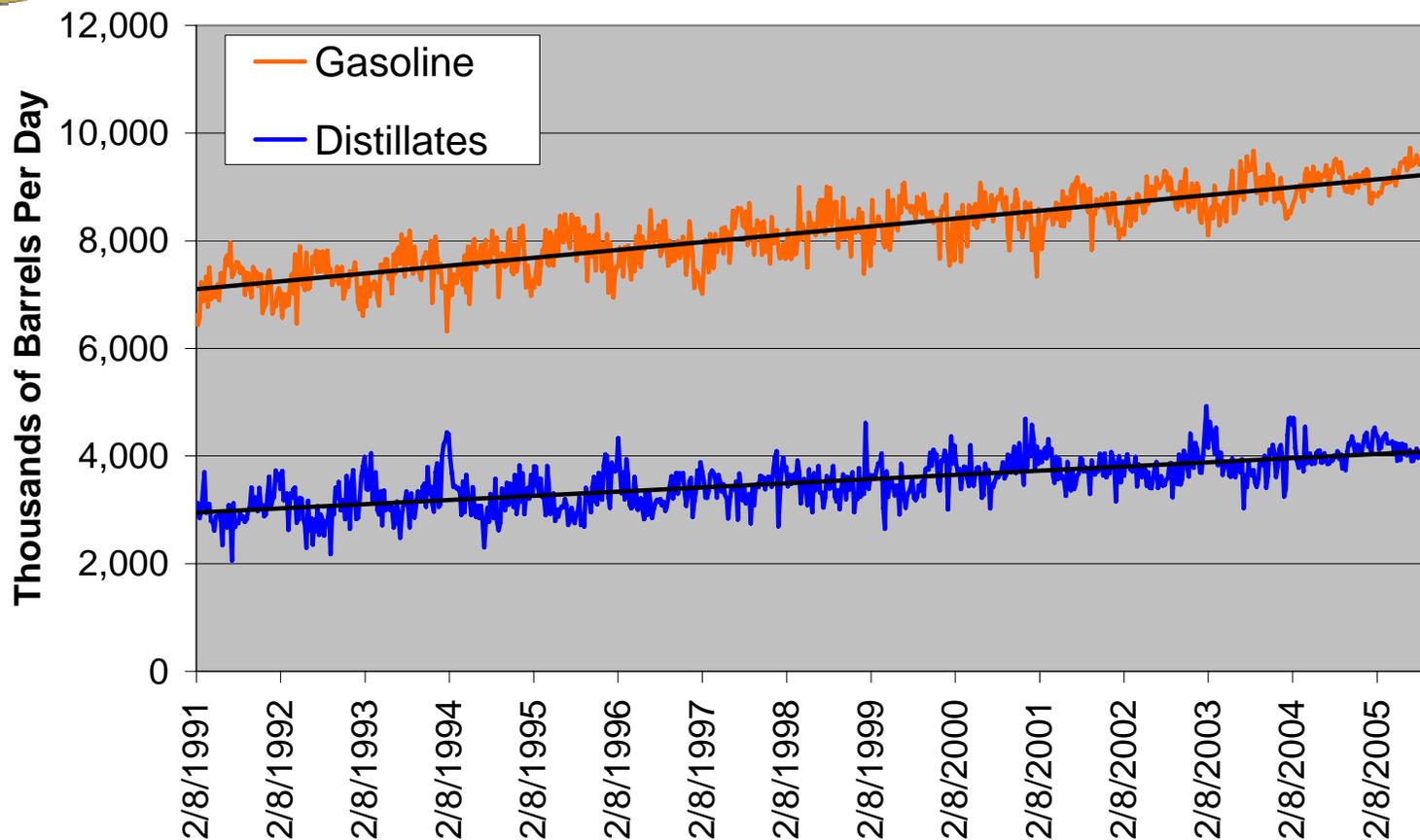


Europe diesel fuel demand trend similar to U.S. but opposite for gasoline.

Source: EIA, Purvin & Gertz



Gasoline & Distillate Demand U.S. Feb 1991 - Oct 2005

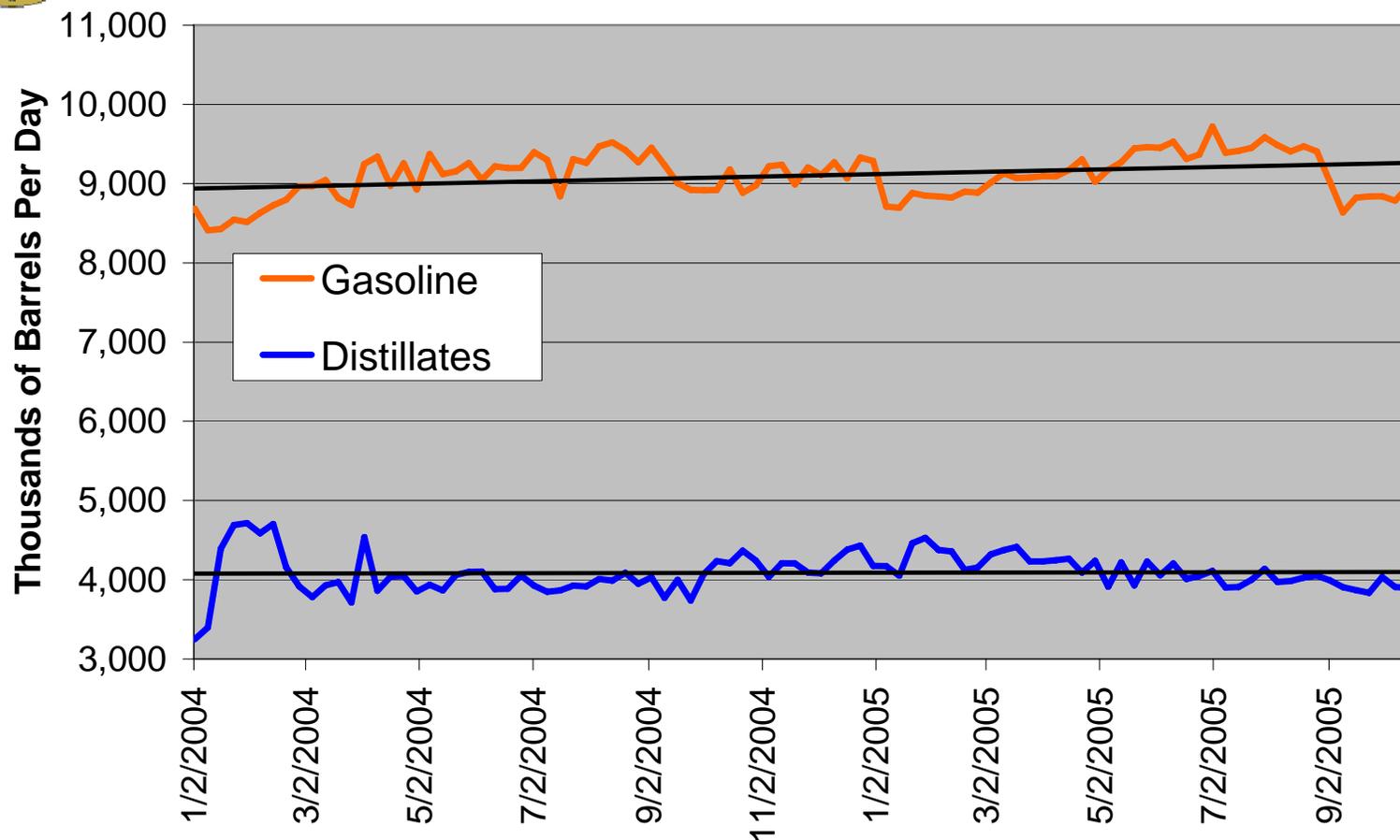


But will higher prices sustained over longer periods of time reduce growth?

Source: Energy Information Administration



Gasoline & Distillate Demand U.S. Jan 2004 - Oct 2005

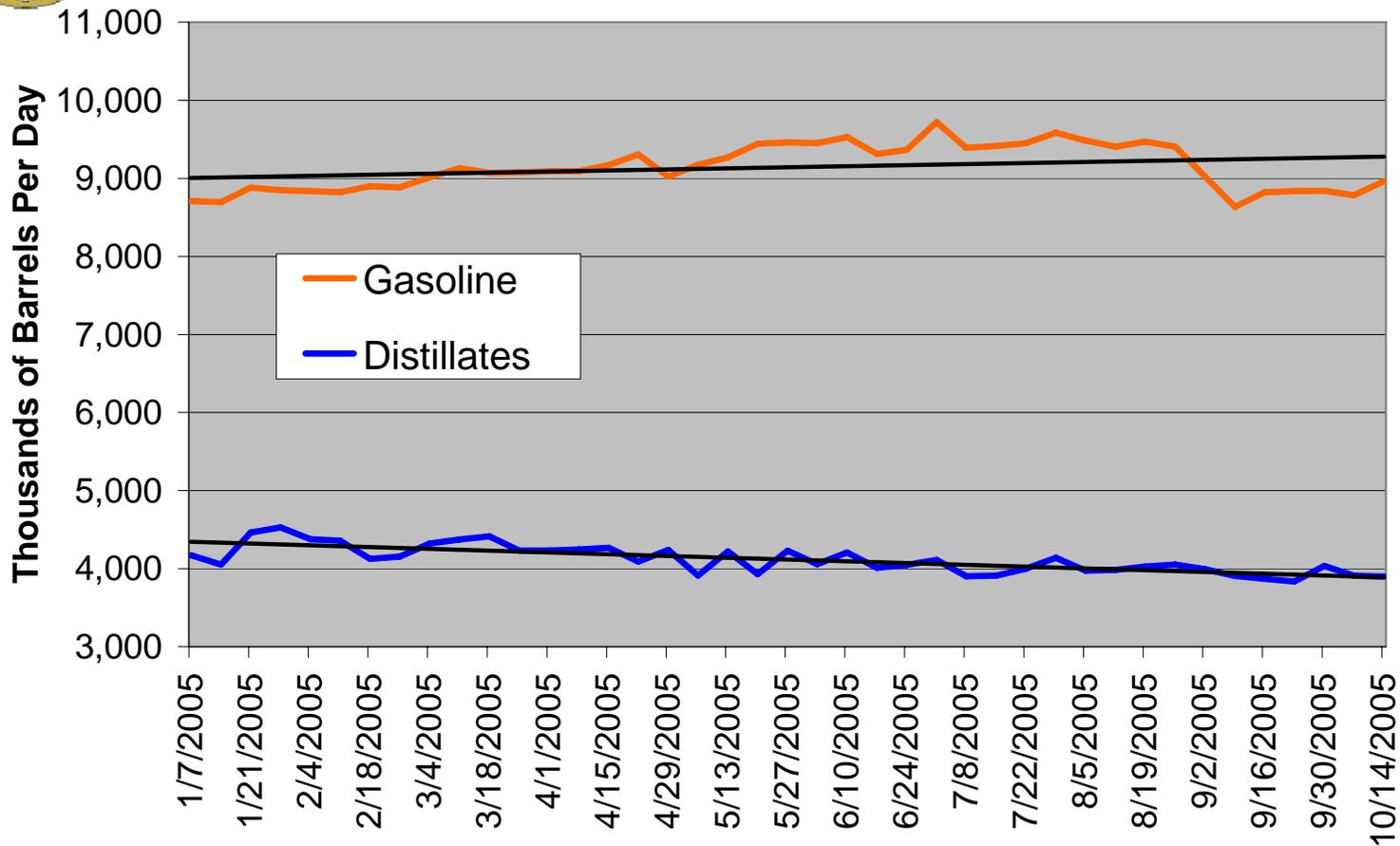


Growth rates have slowed over the last 22 months.

Source: Energy Information Administration



Gasoline & Distillate Demand U.S. Jan 2005 - Oct 2005

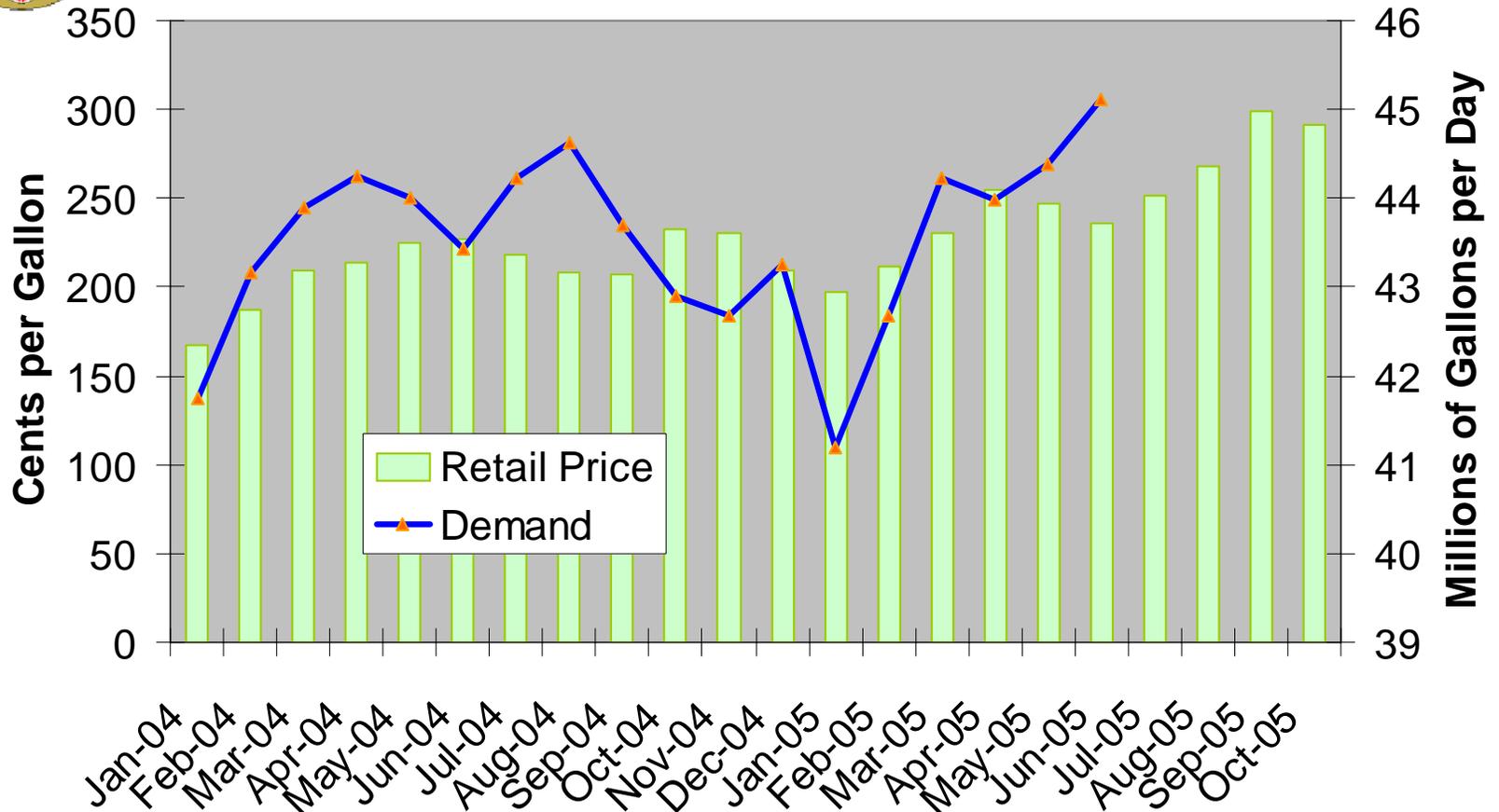


Growth rate for distillate has been negative since the beginning of the year.

Source: Energy Information Administration



California Gasoline - Retail Price vs. Demand

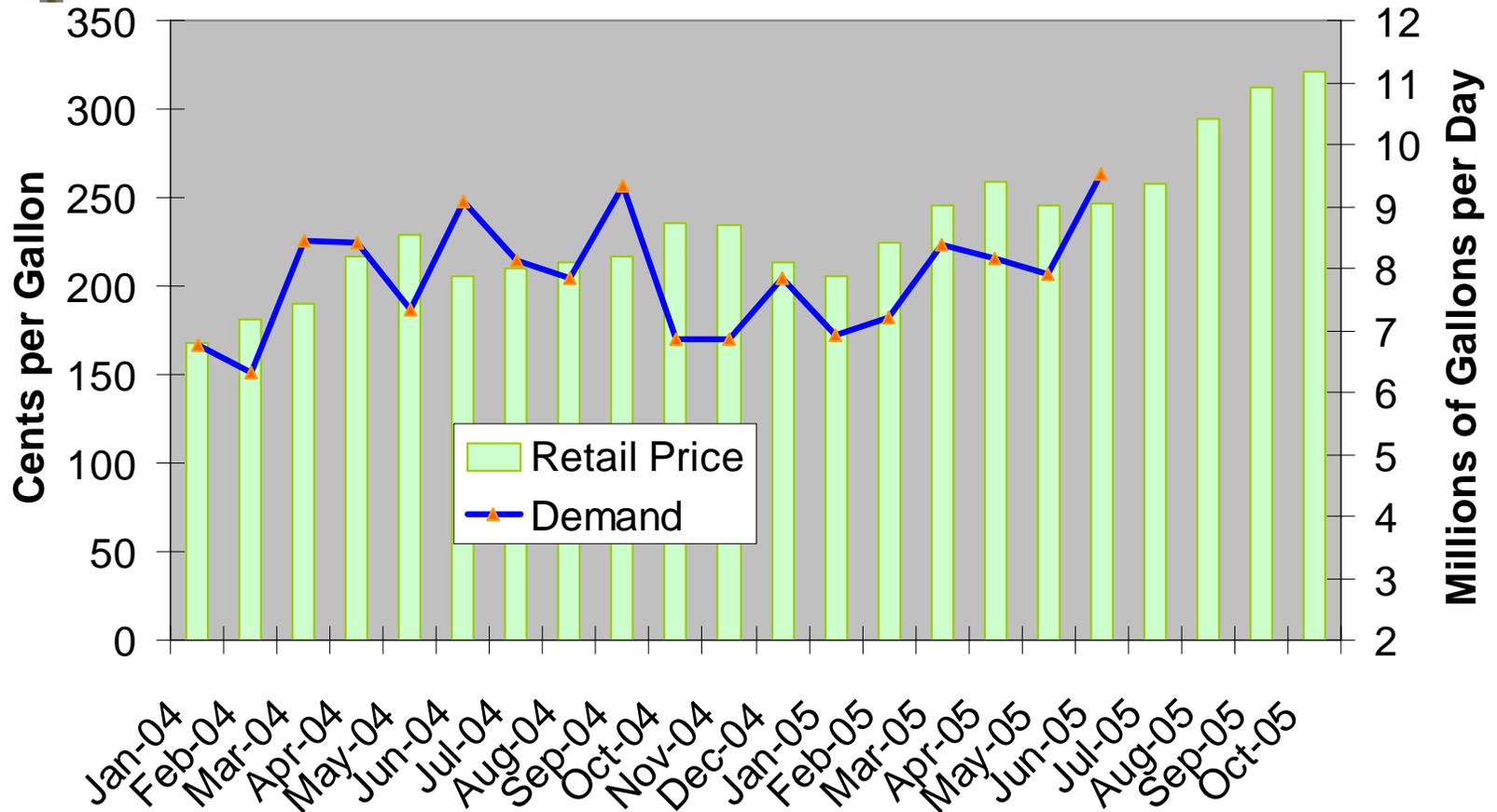


Gasoline demand has large seasonal fluctuations.

Source: EIA for retail price & Board of Equalization for taxable sales.



California Diesel Fuel - Retail Price vs. Demand

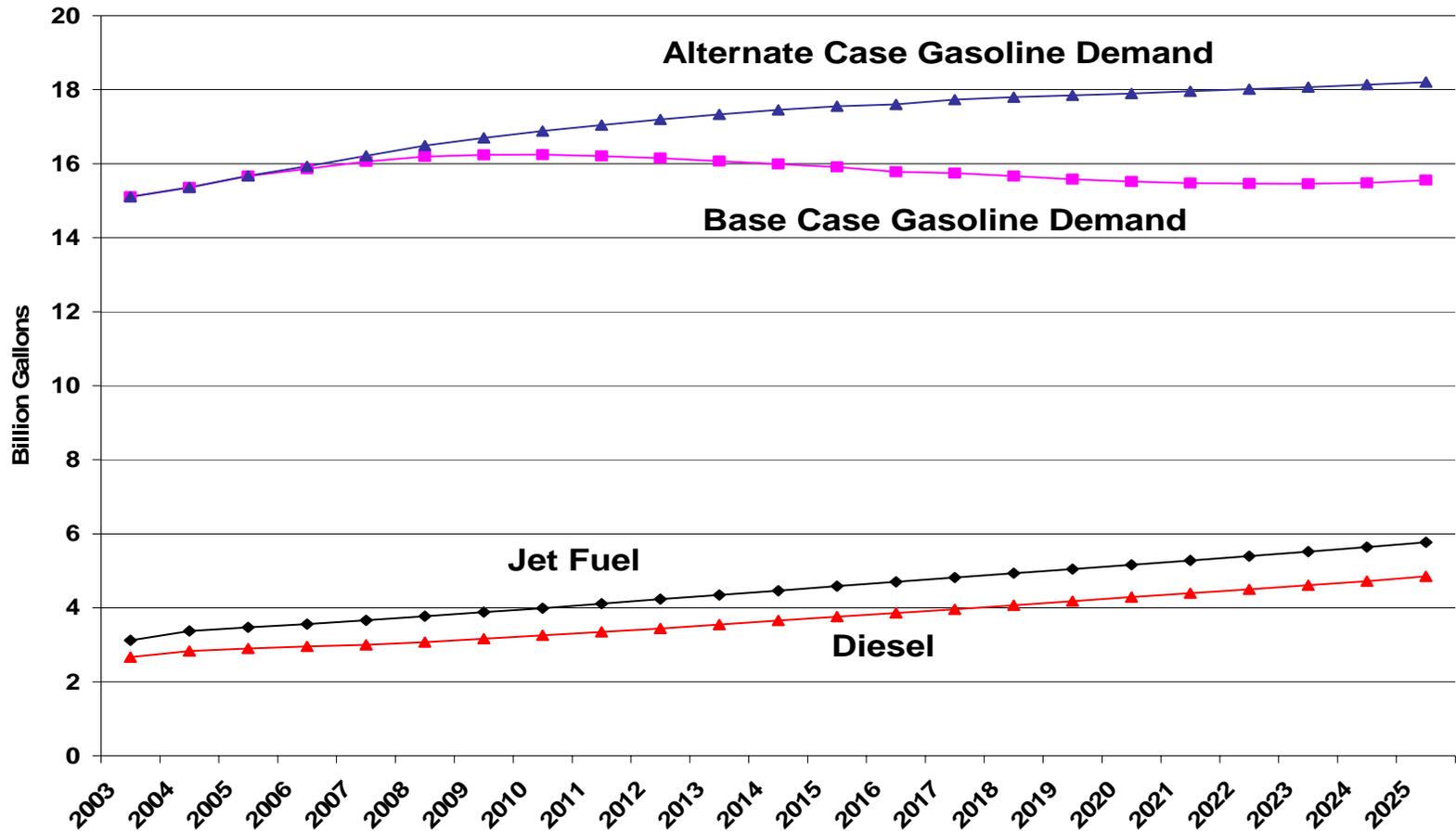


Diesel fuel demand has less seasonal variability.

Source: EIA for retail price & Board of Equalization for taxable sales.



California Transportation Demand Forecasts





Transportation Demand Forecast Results

- Base case and alternative case demand forecasts for gasoline, diesel and jet fuel
- **Gasoline demand** in California grows by an average of 0.1% per year in the base case forecast and by 0.9% in the alternative forecast from 2005-2025
- **Diesel demand** grows by an average of 2.7% per year in the base case forecast and by 2.9% in the alternative forecast
- **Jet fuel** demand grows by an average of 2.9 % per year
- Average **fuel efficiency** rises by 33% over the forecast period in the base case and by 10% in the alternative case
- Higher prices for sustained periods of time could impact demand
 - California gasoline demand up only 0.4% for first 6 months
 - But California diesel fuel demand is up 3.8%

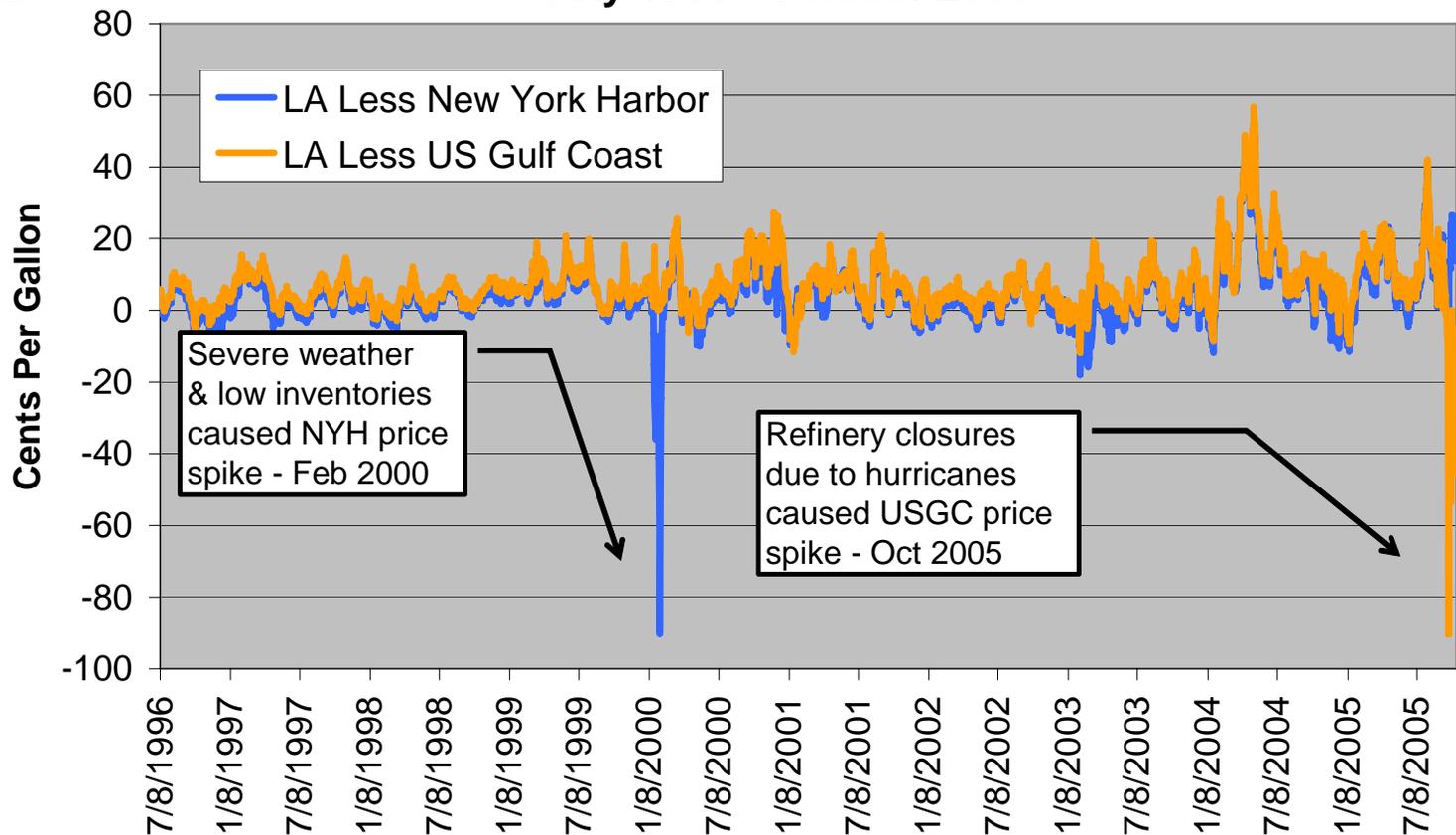


Diesel Fuel Prices Recent Trends & Differences





Diesel Fuel Spot Pipeline Prices Regional Differences July 1996 - October 2005

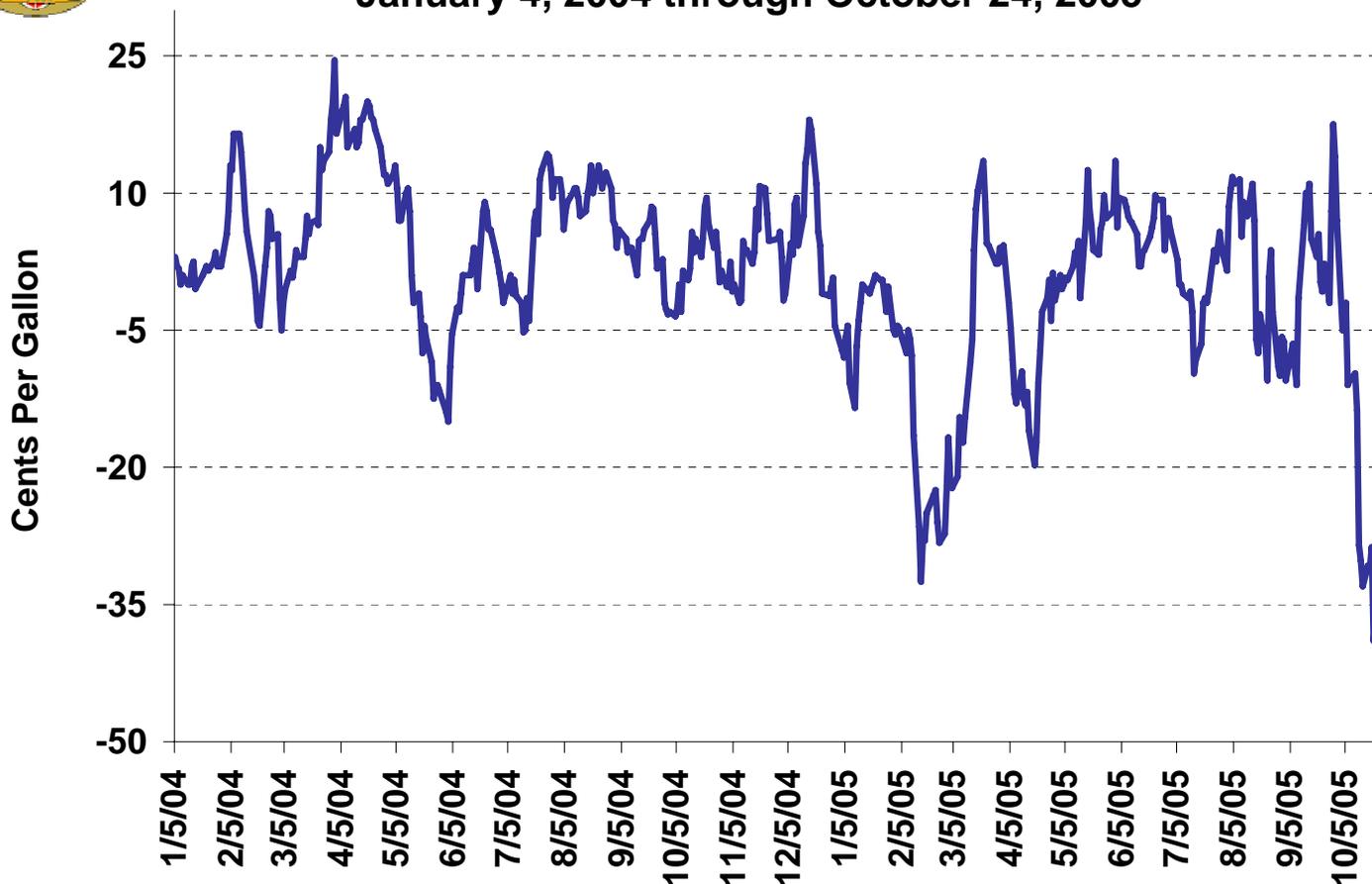


CA price 7 cents greater than USGC & 4.6 cents greater than NYH since 1996.

Source: Energy Information Administration



Diesel Fuel Spot Pipeline Prices California Less Pacific Northwest January 4, 2004 through October 24, 2005

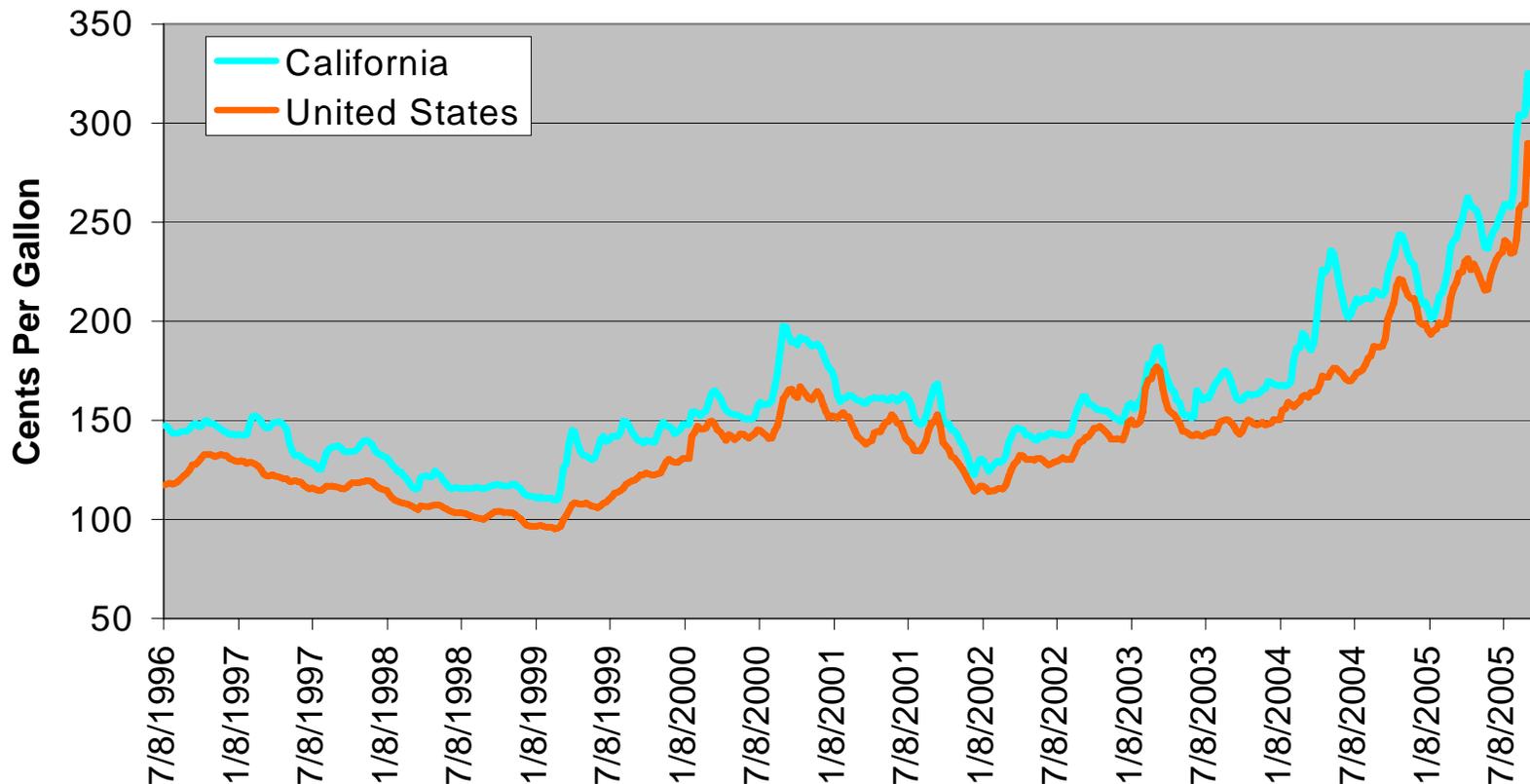


Closer to home, CA prices only 1.3 cents per gallon greater than PNW EPA Diesel

Source: Oil Price Information Service



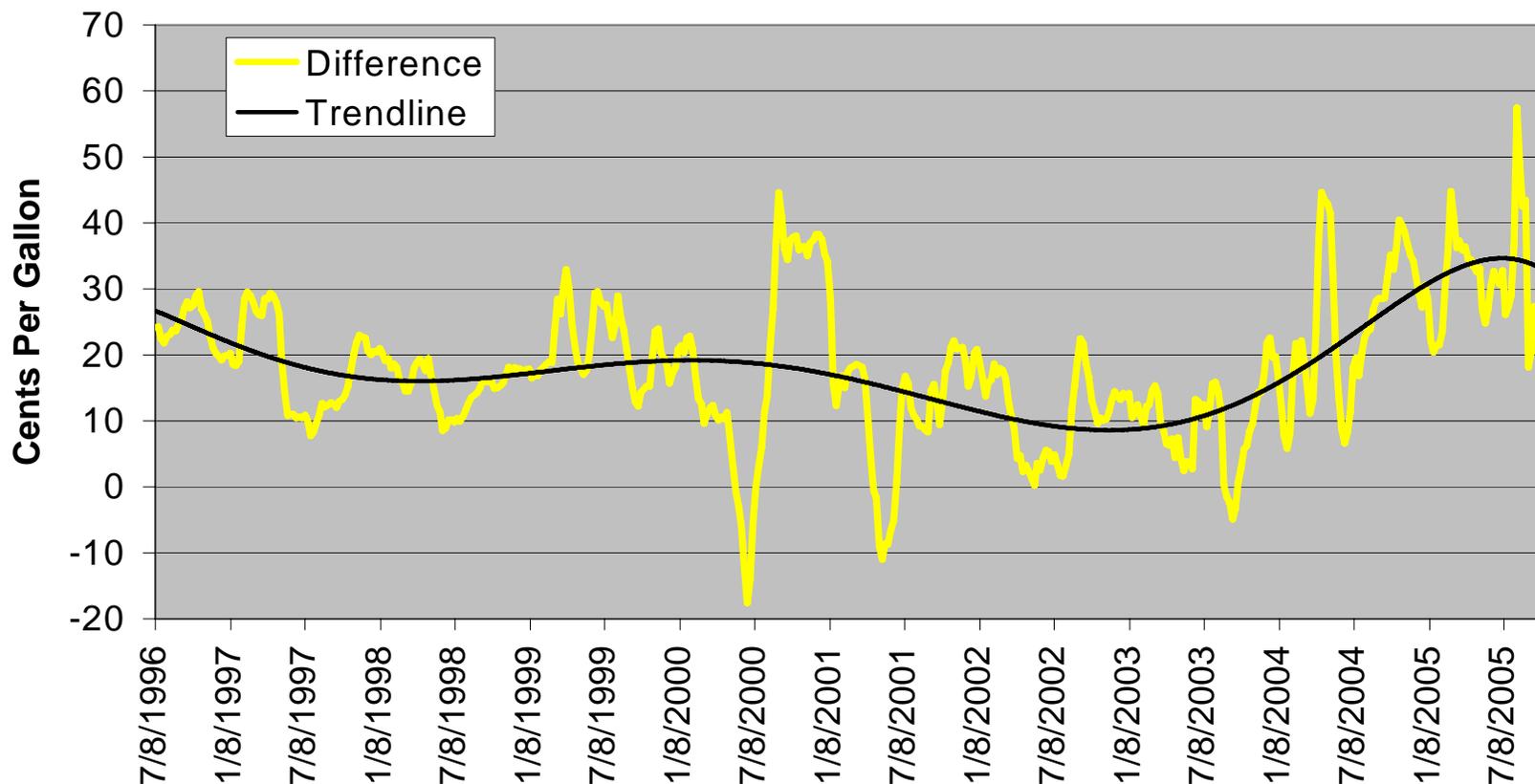
Retail Diesel Fuel Prices California & United States July 1996 - October 2005



California and U.S. prices continue to rise due to increasing cost of crude oil
California normally more expensive than U.S. average



Retail Diesel Fuel Price Differences California Less United States July 1996 - October 2005



**California retail price has averaged 18.2 cents higher than U.S. since 1996.
Difference has been increasing over the last couple of years.**



Ultra Low Sulfur Diesel Fuel Outlook

- New regulation requires lower sulfur content for diesel fuel
 - 15 parts per million sulfur limit
 - Refiners must be producing new fuel by June 1, 2006
- California refiners are expected to be ready
 - Several refiners are already producing ULSD now
 - No compliance concerns have been surfaced
- U.S. refiner compliance outlook is similar
 - US EPA pre-compliance surveys gauge readiness
 - Next report due out shortly



Most U.S. Refiners Should Be Ready For Transition To ULSD

Table 1.
U.S. Aggregated Report Information
Highway Diesel Fuel Refinery Statistics 2006-2010

Year	2003	2006	2007	2008	2009	2010
# refineries producing highway diesel fuel	115	110	112	112	113	114
# refineries at 100% 15 ppm		87	89	88	91	97
# refineries at 100% 500 ppm	115	12	12	12	11	9
# refineries with 15/500 ppm mix		11	11	12	11	8
# refineries increasing production (vs. 2003)		76	81	80	80	86
# refineries shifting into the highway market		4	5	5	6	6
# refineries decreasing production (vs. 2003)		43	39	40	41	35
# refineries shifting out of the highway market		9	8	8	8	7
# refineries generating credits		57	58	58	60	
# refineries using credits		6	5	5	4	3

Source: EPA Highway Diesel Fuel 2004 Pre-Compliance Report



ULSD Regulatory Differences California and U.S.

- Geographic scope
 - California regulation is statewide
 - U.S. has regional phase-in, Rocky Mt. refiners have additional time to comply
- On and off-road
 - California has no difference, identical regulation for all uses
 - U.S. allows higher sulfur in off-road applications, but must fully comply by 2010
- California ULSD may be exported for use in other states
- U.S. ULSD may not be sold in California
- Sulfur levels will be identical but California regulations limit aromatic concentrations of diesel fuel