Phasing Out of MTBE – Impacts on Ethanol Supplies

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Presentation Topics

- Background
- California context
- U.S. ethanol production, demand & inventories
- U.S. MTBE demand
- Projected ethanol replacement volumes
- Potential sources of incremental ethanol supplies
- Overview of incremental ethanol supply availability
- Potential logistical issues

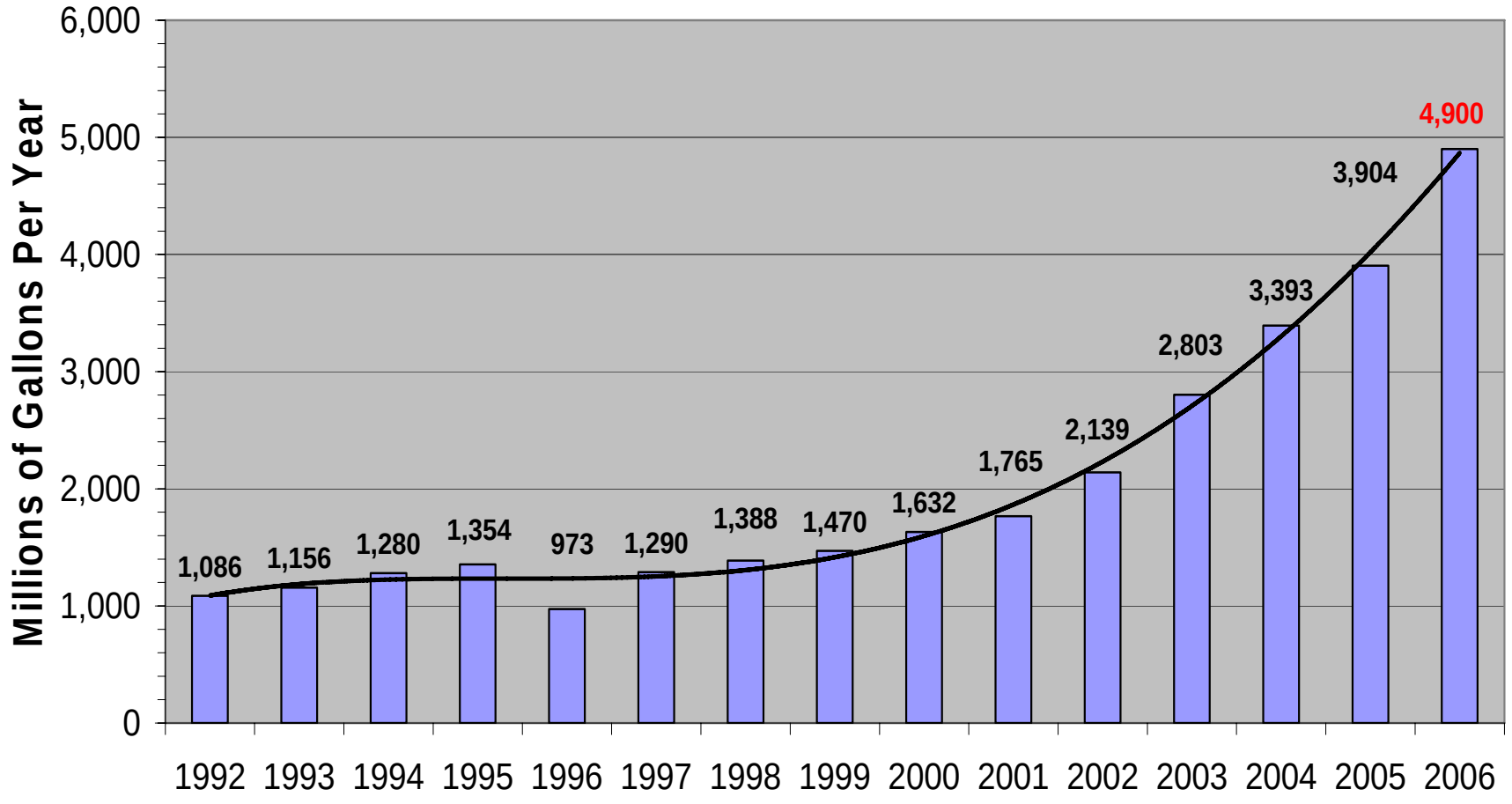
Background

- 2005 Energy Policy Act did not provide "safe harbor" provision for MTBE users against defective product liability lawsuits
- Soon a number of petroleum companies announced plans to transition away from MTBE
- Other companies and petroleum pipeline operators have made similar announcements over the last several months
- Targeted voluntary transition deadline is May 2006
- Will there be enough ethanol supply for this transition?

California Context

- Energy Commission normally assesses national or regional fuel supply changes to determine potential impacts on California
- California is the largest consumer of ethanol in the nation, over 950 million gallons or 60 thousand barrels per day in 2005, adequacy of national ethanol supply is important
- Transition from MTBE to ethanol in California began in January of 2003 – more than half of the refiners converted
- Rest of the industry followed January of 2004
- Imports via rail from the Midwest account for the majority of the state's supply
- Foreign imports and local production account for 2% of supply

U.S. Ethanol Production
1992 - 2005 with 2006 Projection



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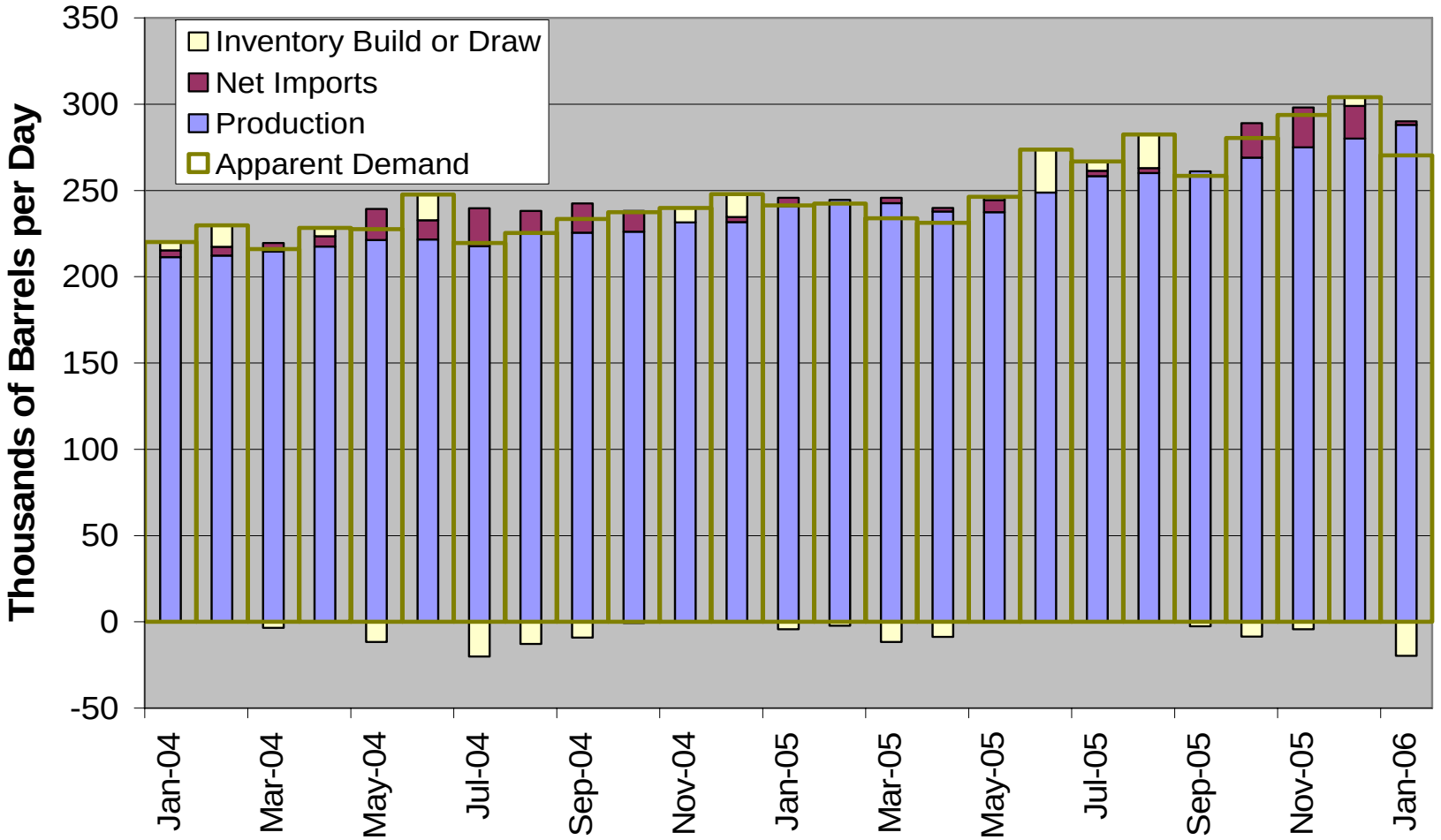
U.S. Ethanol Production

- Domestic ethanol production has increased dramatically over the last couple of years
- U.S. production is forecast to reach 4.9 billion gallons for 2006
- Recent ethanol capacity expansion has been spurred on by the Renewable Fuels Standard (RFS) that was part of the 2005 Energy Policy Act
- More recent announcements of expansion plans or new plant construction are likely the result, in part, of the new demand being created by the voluntary transition away from MTBE

U.S. Ethanol Supply & Demand

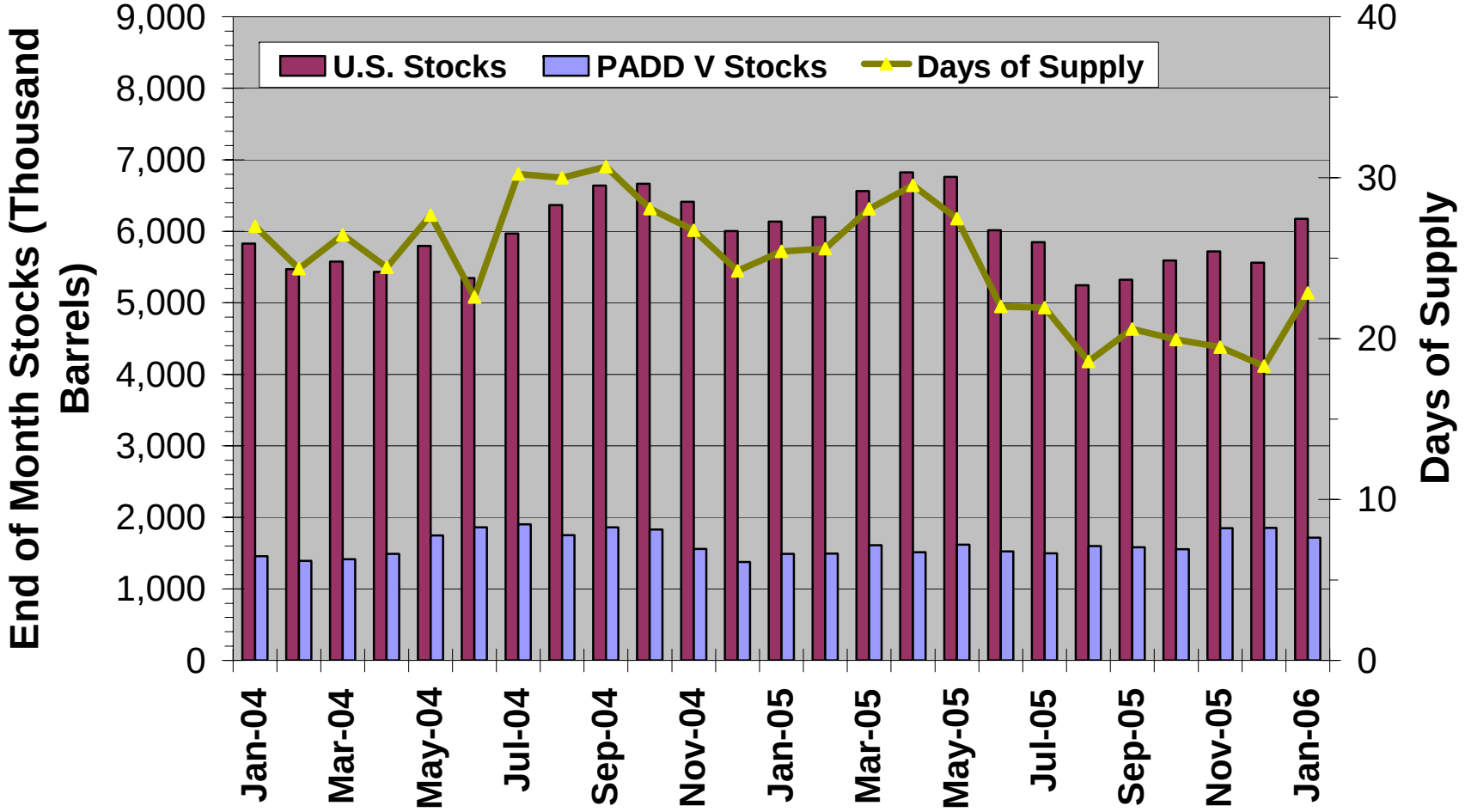


Source of Data: Energy Information Administration

U.S. Ethanol Supply & Demand

- Ethanol demand in the United States during 2005 was 4.0 billion gallons or about 263 thousand barrels per day
- Demand peaked in December of 2005
  - 304 thousand barrels per day
- 27% increase since December of 2004
- Imports augment supply periodically

Fuel Ethanol Stocks vs. Days of Supply



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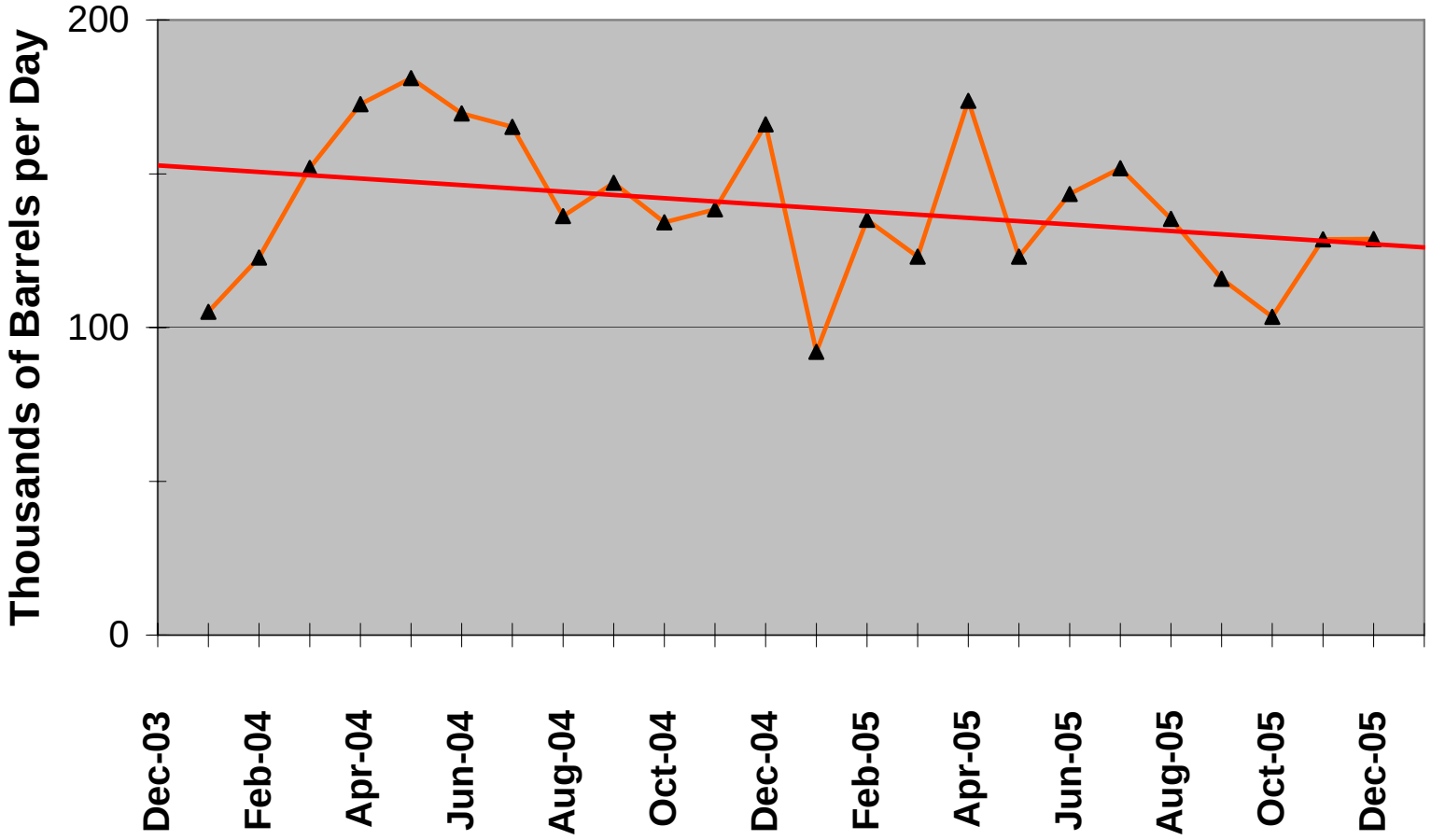
U.S. Ethanol Inventories

- Domestic fuel ethanol inventories averaged 6 million barrels during 2005, peaking at 6.8 million barrels in April of 2005
- Inventories have increased nearly a million barrels between August 2005 and January 2006
- "Days of supply" – number of days of current demand held in inventory – stood at 23 in January 2006, lower than the average of 26.2 days that were held in January of 2004 and January of 2005
- For comparison, "days of supply" for gasoline in the U.S. averaged 16.7 in 2005

U.S. MTBE Demand
2004-2005

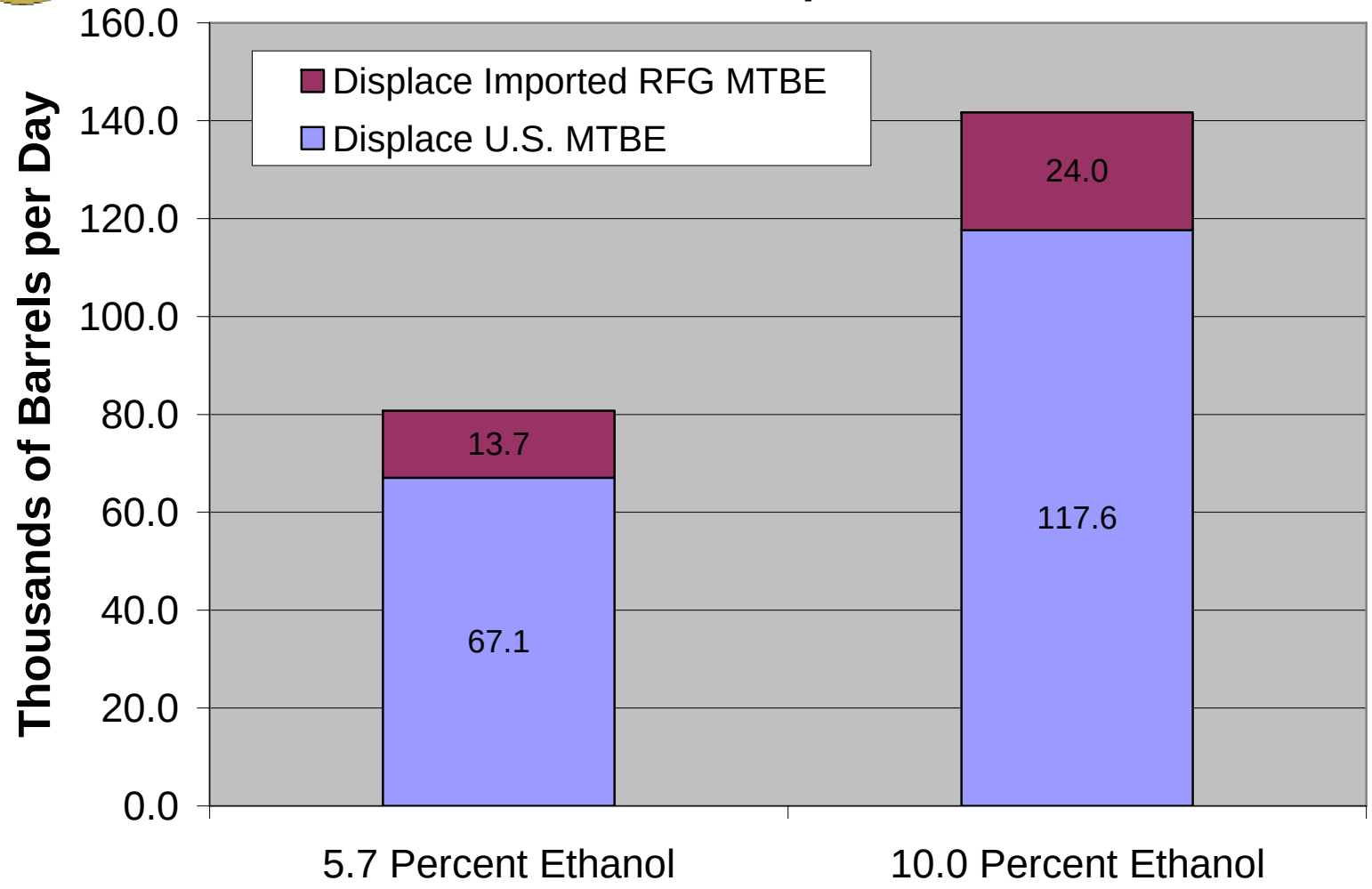


Source of Data: Energy Information Administration (EIA)

U.S. MTBE Demand

- Demand for Methyl-tertiary butyl ether (MTBE) averaged 129 thousand barrels per day in 2005
- Prior to the voluntary transition away from MTBE, the use of this oxygenate has been declining over the last two years
- Some MTBE is used in reformulated gasoline imports, about 26 thousand barrels per day, that would need to be replaced with ethanol if marine terminal operators eliminate the ability to receive and segregate imported gasoline with MTBE following the transition

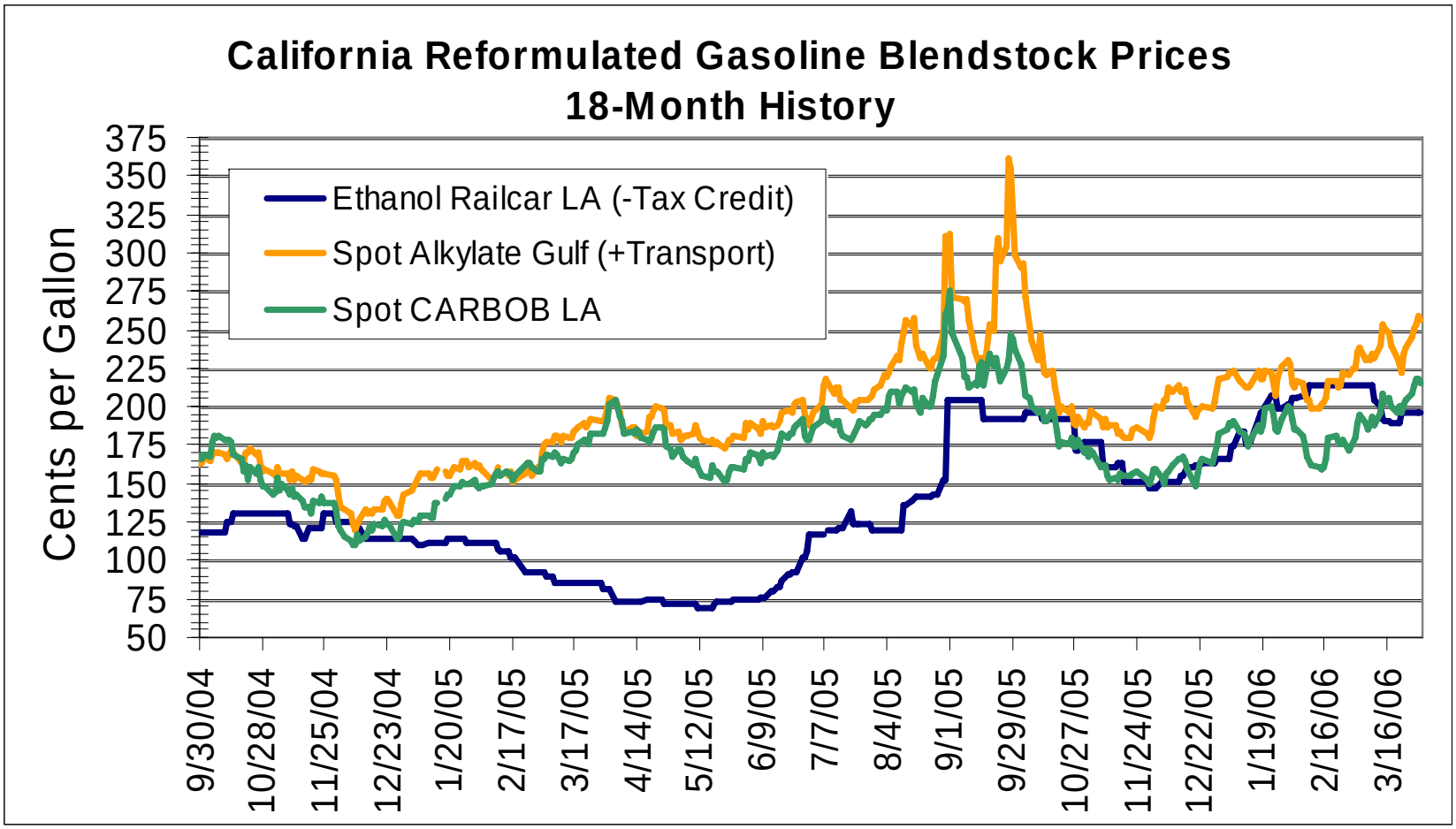
Incremental U.S. Ethanol Demand
2006 MTBE Replacement



Projected Ethanol Replacement Volumes

- If refiners and other gasoline marketers substitute all of the domestic MTBE use with 5.7% by volume ethanol, incremental demand is calculated at 67 thousand barrels per day
- Using 10% by volume ethanol, incremental demand would increase to 118 thousand barrels per day
- If importers of reformulated gasoline are unable to continue using MTBE in their gasoline, additional quantities of ethanol would be required
  - 14 thousand barrels per day for ethanol at 5.7% volume
  - 24 thousand barrels per day for ethanol at 10% volume

Recent Ethanol Price Relationships



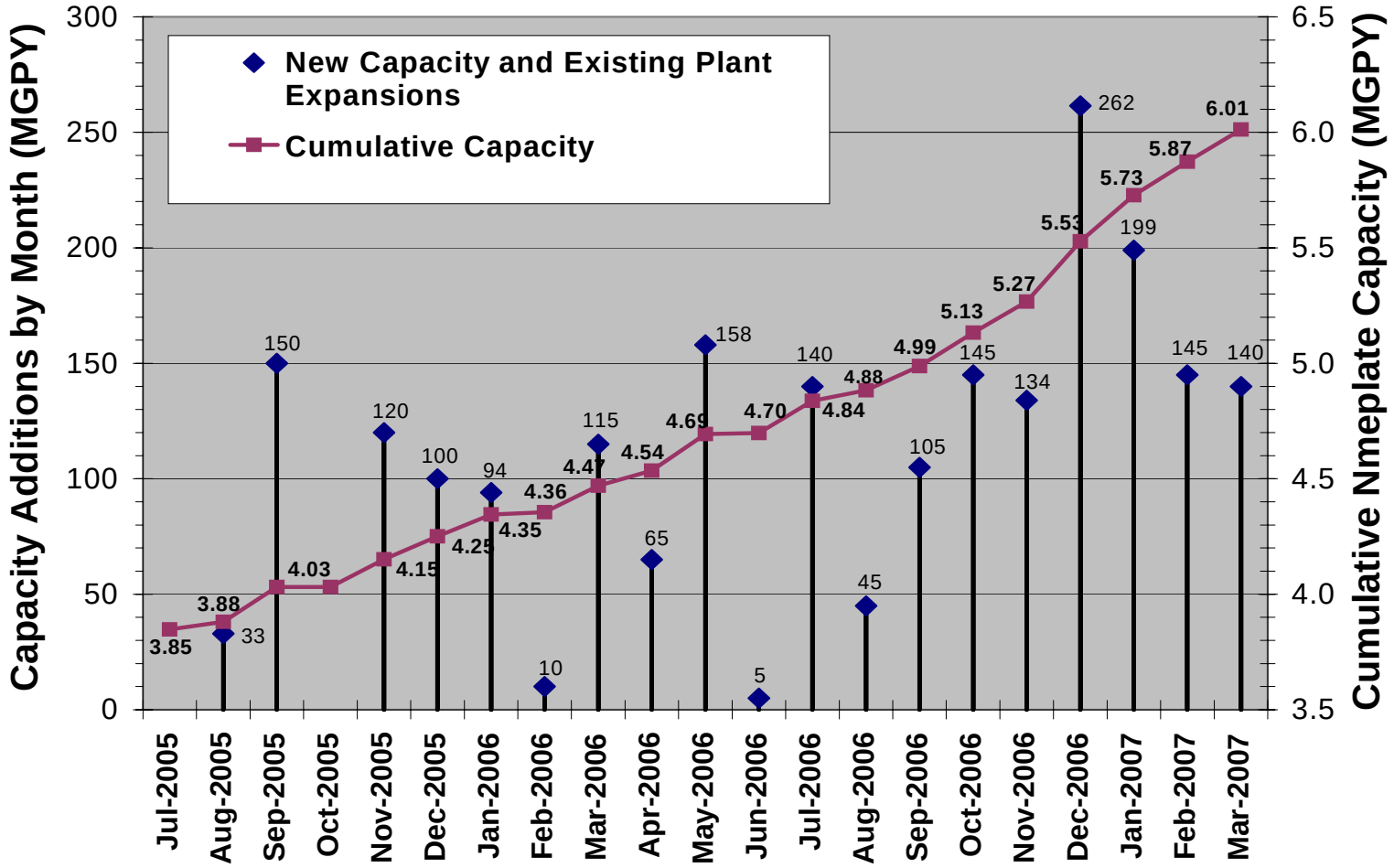
Incremental Ethanol Supply
Potential Sources - Discretionary Blending

- Ethanol demand in the United States during 2005 was 4.0 billion gallons or about 263 thousand barrels per day
- Ethanol is used in multiple markets
  - Reformulated gasoline
  - Discretionary (gasohol or E85 markets)
  - Mandated state programs – Minnesota
  - Wintertime oxygenated gasoline requirements
- Discretionary blending of ethanol could be diverted to the East and Gulf Coasts of the U.S. to be used as a replacement for MTBE – especially when prices are higher than or comparable to gasoline

Incremental Ethanol Supply
Potential Sources - Discretionary Blending (cont)

- Assuming 37 to 44% of the domestic ethanol market is for discretionary or seasonal blending, an upper estimate of 116 thousand barrels per day of incremental ethanol could be available for MTBE replacement if all of the discretionary ethanol is diverted
- A lower estimate of 88 thousand barrels per day assumes that only 90% of the lower discretionary use portion was available for MTBE replacement

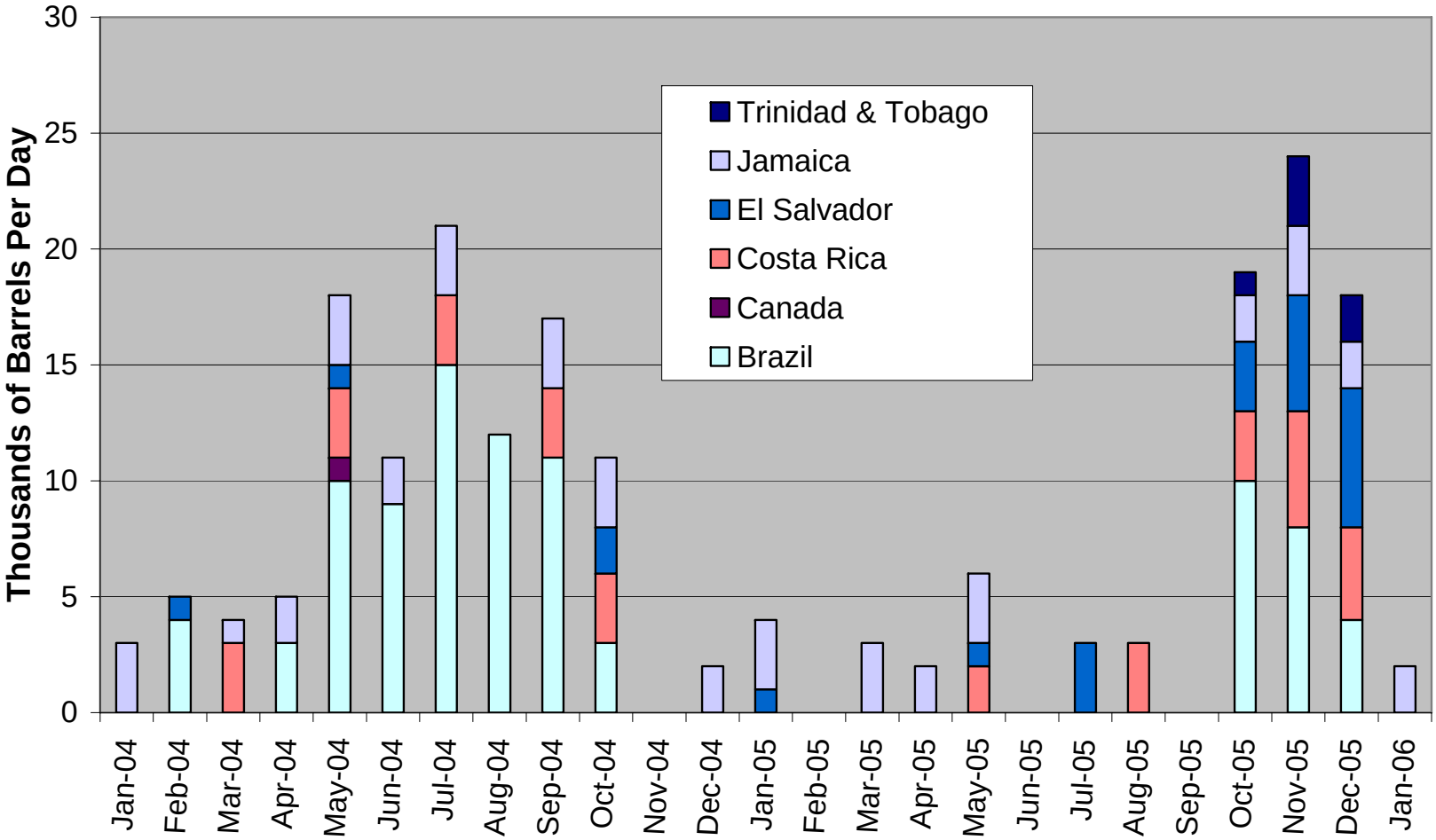
U.S. Ethanol Plant Nameplate Capacity Growth
July 2005 - March 2007



Incremental Supply – New Production

- Domestic ethanol production capacity continues to increase – from December 2005
  - Additional 442 million gallons of production capacity by May 2006 or nearly 29 thousand barrels per day
- Throughout the remainder of 2006, the completion of new ethanol plants will help to ease any temporary tightness of ethanol supplies that may develop during the voluntary transition away from MTBE

U.S. Net Imports of Fuel Ethanol



Source of Data: Energy Information Administration

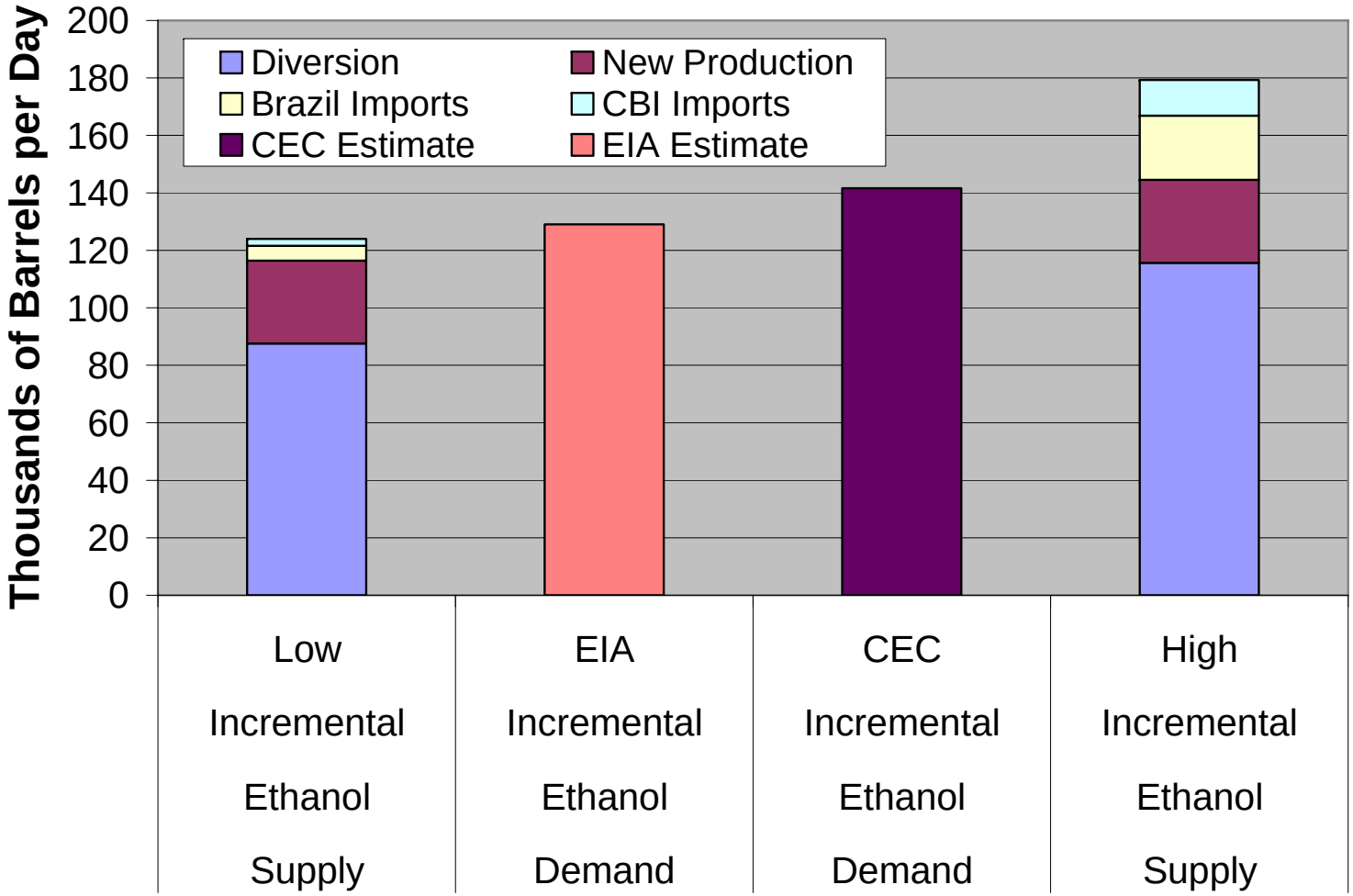
Incremental Supply – Additional Imports

- Net imports of fuel ethanol from Brazil and various countries in the Caribbean were modest in 2005, accounting for less than 3% of U.S. ethanol demand
- But additional imports to help augment supply can and have been an important periodic supply source
- Although Brazil is still the world's largest producer of ethanol – between 4 and 4.5 billion gallons in 2005 – most of the fuel is needed for domestic consumption
- But incremental imports from Brazil, estimated at 5 to 22 thousand barrels per day, could become available over the next couple of months
  - Minimum ethanol concentration was reduced from 25 to 20%
  - Increased sugar cane harvest – more ethanol production

Incremental Supply – Additional Imports (cont)

- Trinidad & Tobago, El Salvador, Jamaica, and Costa Rica all produce ethanol that can be imported into the U.S. duty free
  - Caribbean Basin Initiative (CBI) program
  - Duty free portion is limited to 7% of the previous year's U.S. ethanol consumption
- CBI countries shipped approximately 5 thousand barrels per day of ethanol to the U.S. last year
- Since ethanol consumption continues to rise, the theoretical maximum duty free ethanol imports from CBI countries could total nearly 18 thousand barrels per day
- Incremental imports are estimated to range between 2 and 12 thousand barrels per day

Summary of Incremental Ethanol Supply & Demand



Overview of Incremental Ethanol Supply Availability

- Potential incremental ethanol demand quantities associated with the voluntary transition away from ethanol are within the estimated range of incremental ethanol supply
- CEC estimate is slightly higher than EIA's because the MTBE used in conventional gasoline (approximately 10 to 15 TBD) is assumed to be replaced with ethanol
- Maximum diversion away from discretionary use and additional ethanol production totals are at a level slightly greater than the calculated incremental ethanol demand figures of 129 to 142 thousand barrels per day

Potential Logistical Issues

- The readiness of terminals throughout the U.S. to receive, store and dispense ethanol has not been assessed by the Energy Commission
- Nor has the adequacy of additional tanker trucks and drivers to distribute ethanol
- But ethanol rail car production levels are now between 100 and 110 new cars per week, a level that is expected to increase to nearly 150 rail cars per week later next month
- Further, orders for new rail cars are booked through the end of this year or early 2007 – most of these new rail cars will be used to dispense the expanding output from the domestic ethanol industry

Potential Logistical Issues (cont)

- The advance lead time for this voluntary transition is shorter than previous MTBE phaseouts that were completed in California and the Northeast United States
- Due to the abbreviated time available for market participants to prepare for this transition, it is possible that some logistical difficulties could arise, but unknown how widespread or for what duration any problems may persist
- But participants in the transportation fuels industry have demonstrated remarkable resiliency and ingenuity when it comes to reacting and correcting temporary supply imbalances or logistical constraints

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