California's Phaseout of MTBE - Background and Current Status

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Introduction

- Background - history of MTBE use
- Factors associated with decision to phase out the use of MTBE
- Subsequent Actions (1999-2003)
- Elements necessary for successful phaseout
- Anticipated impacts of MTBE removal
- Other issues affecting California
- Study to examine causes of today's high prices
- Closing remarks

Background - MTBE Use

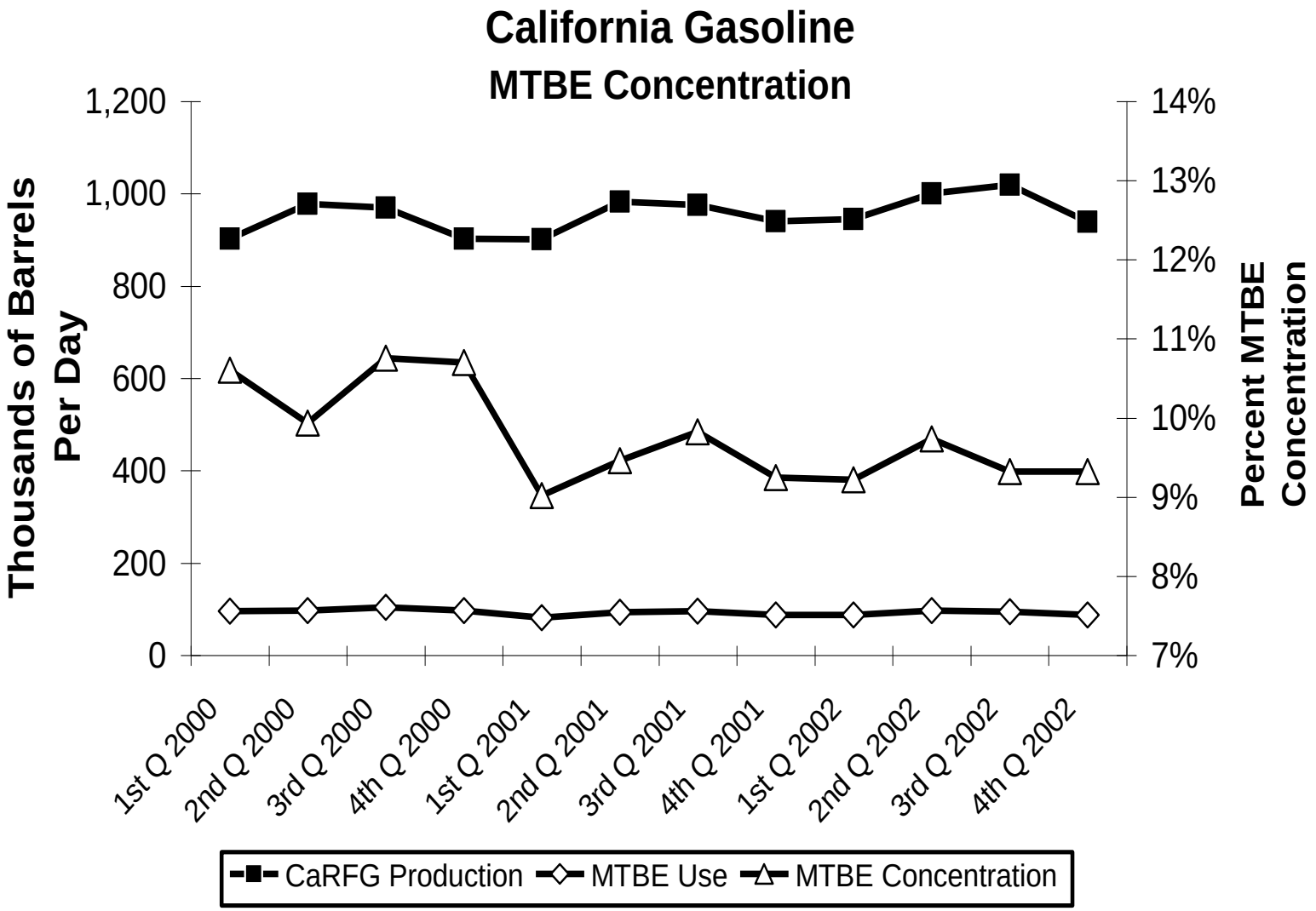
- MTBE used in gasoline since late 1970s
- Required seasonal use beginning 1992
  - Winter oxygenated fuels program
  - Designed to reduce carbon monoxide emissions
  - Most refiners selected MTBE
  - Approximately 11 percent of gasoline volume
- Mandated year-round use in 1995 & 1996
  - Reformulated gasoline (RFG) program to control emissions of toxics and pollutants that contribute to the formation of photochemical smog
  - Federal law requires minimum use of oxygenates in all RFG regions (2 percent by weight)
  - California regulations permit discretionary use, but federal mandate applies to 80 percent of State

Background - MTBE Use (cont.)

- Gasoline demand and supply
  - Gasoline demand in California during 2003 estimated in range of 15.6 to 16 billion gallons
  - Demand expected to increase between 1.6 and 3 percent per year
  - Refineries located in California produce the majority of gasoline for the State
  - Imports of gasoline and blending components increase each year, while refinery capacity remains relatively flat (annual growth rate of 0.5 percent)
  - California represents nearly 12 percent of United States gasoline demand

Background - MTBE Use (cont.)

- Types and quantities of fuel oxygenates
  - MTBE is primary oxygenate of choice
    - Superior blending properties
  - 1.4 billion gallons blended in California gasoline during 2002
  - Blending concentration of over 9 volume percent for entire gasoline pool
  - Ethanol use in 2002 less than 100 million gallons
    - ConocoPhillips was first company to use ethanol in California reformulated gasoline



MTBE concentration declining over time

Factors Associated with Decision to Phase Out the Use of MTBE

- Water resource contamination concerns
  - Detections of MTBE in water wells
  - Prediction that contamination would spread and cleanup costs dramatically increase
- Potential health concerns also raised
- Studies ordered by California Legislature to determine:
  - Cost to eliminate MTBE
  - Assess risk to people and the environment of continued use
  - Initial work conducted by California Energy Commission and University of California

Factors Associated with Decision to Phase Out the Use of MTBE (cont.)

- Initial studies completed by late 1998
  - UC - Annual water remediation costs estimated at $340 MM to $1.5 billion
  - CEC - Gasoline production cost would only increase 2 - 3 cents per gallon with use of ethanol
    - Annual cost to California consumers of $300 to $450 million
- Executive Order issued by Governor Davis during March 1999
  - Phases out use of MTBE by December 31, 2002
  - California Air Resources Board (ARB) amends gasoline specifications banning MTBE, ethanol only acceptable fuel oxygenate substitute

Subsequent Actions - 1999

- Energy Commission determines that timetable to remove MTBE cannot be advanced
- ARB adopts Phase 3 RFG regulations
  - Ethanol only permissible oxygenate
  - Gasoline specifications changed
    - lowers sulfur from 40 to 20 ppm
    - lowers benzene from 1.0 to 0.8 vol. percent
    - aromatics limit increased from 30 to 35 vol. percent
    - distillation (T50 and T90) increased by 3 to 5 degrees F.
    - olefins unchanged

Subsequent Actions - 2001

- US EPA denies request by California to receive waiver from the federal minimum oxygen requirement - June 12
  - 70 percent of State's gasoline must contain an oxygenate - increases to 80 % by 2003
  - Failure to issue waiver will cost California consumers at least *an additional* 3 cents per gallon or $475 million per year
- California Air Resources Board sues US EPA to obtain waiver - August 13
  - Final arguments heard in Ninth Circuit Court of Appeals (February 2003) - awaiting decision

Subsequent Actions - 2002

- CEC revised estimates for MTBE phaseout
  - 3.4 to 6.4 cents per gallon
  - $540 MM to $1 billion per year
- Stillwater Report raised supply and infrastructure concerns
  - Estimated 5 to 10 percent decline in gasoline supply and increased potential for price spikes
- Legal action by Lake Tahoe utility
  - Several companies sued for MTBE contamination
  - Finding of “defective product” by jury
  - Settlement for $68 million

Subsequent Actions - 2002 (cont.)

- Governor Davis issues Exec. Order D-52-02
  - MTBE phaseout delayed until January 1, 2004
- A number of refining companies announce early phaseout of MTBE in California
  - BP, ChevronTexaco, ExxonMobil, and Shell plan to eliminate use of MTBE by early 2003
  - The refineries operated by these companies required less modifications & more self-sufficient with regard to their distribution infrastructure
  - Including Phillips, 60-70 percent of California's gasoline will contain ethanol during 2003
- ARB amends gasoline regulations to delay implementation date until the end of 2003

California Refinery Status - 2003

Northern California Refiners	Location	Notes
ChevronTexaco	Richmond	Phaseout later this year
ConocoPhillips	Rodeo	Have been using ethanol for more than one year
Kern Oil	Bakersfield	Blending ethanol
Shell	Bakersfield	Blending ethanol
Shell	Martinez	Blending ethanol
Tesoro	Concord (Avon)	Using limited quantity of ethanol, complete phaseout later this year
Valero	Benicia	Phaseout later this year
Southern California Refiners		
BP	Carson	Blending ethanol
ChevronTexaco	El Segundo	Blending ethanol
ConocoPhillips	Wilmington	Have been using ethanol for more than one year
ExxonMobil	Torrance	Blending ethanol
Shell	Wilmington	Blending ethanol
Valero	Wilmington	Using limited quantity of ethanol, complete phaseout later this year

Majority of Southern Calif. production MTBE-free, less than 50 percent in Northern Calif.

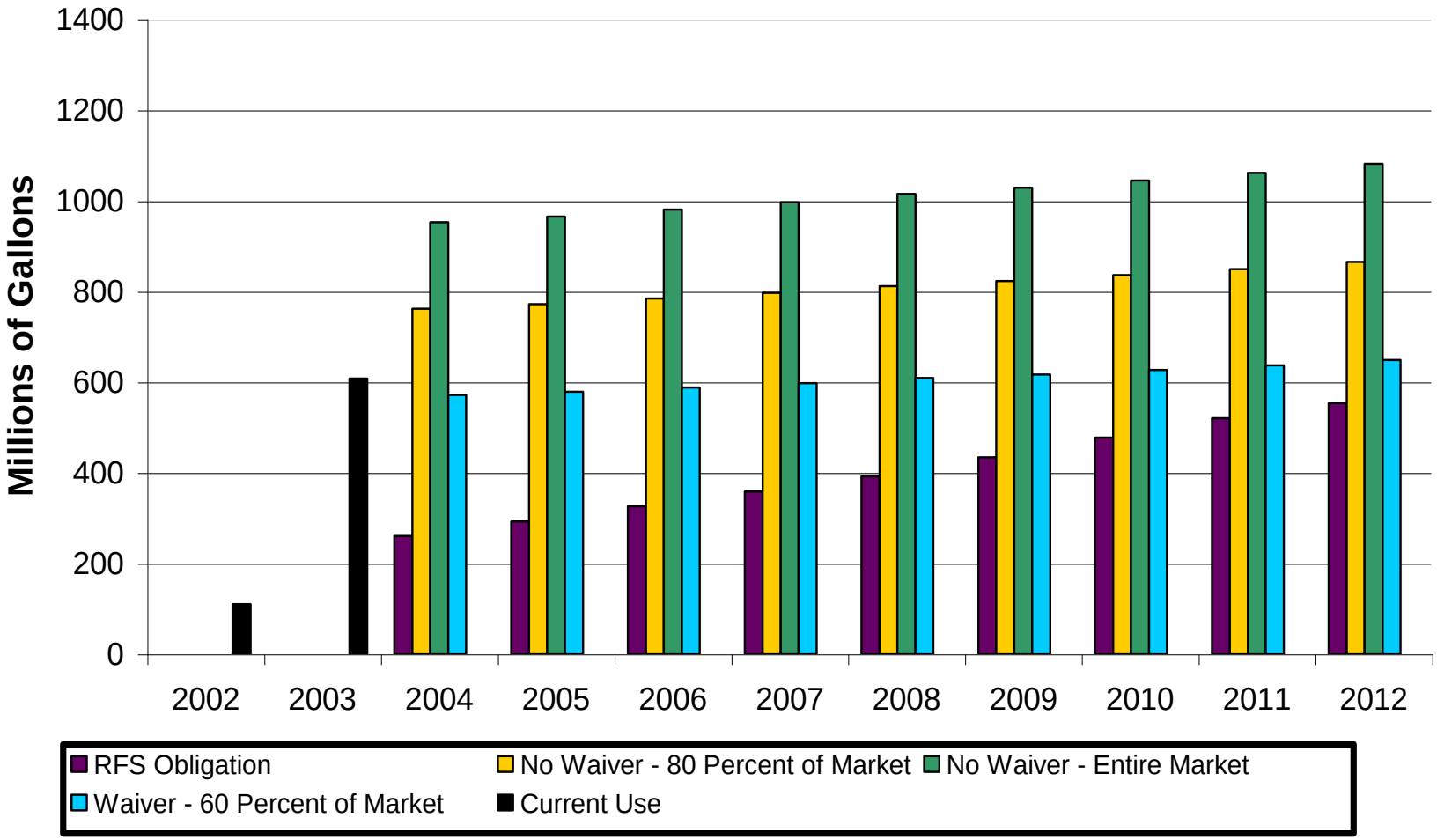
Elements Necessary for a Successful MTBE Phaseout

- Ethanol supplies must be adequate
- Ethanol logistics must be in place
- Refinery modifications must be completed
- Gasoline supply (imports) must be available
- Import infrastructure must be sufficient to accommodate anticipated increase in imports
- “Successful” means that transition to ethanol occurs without disruption to the market and minimal impact on consumers and the economy

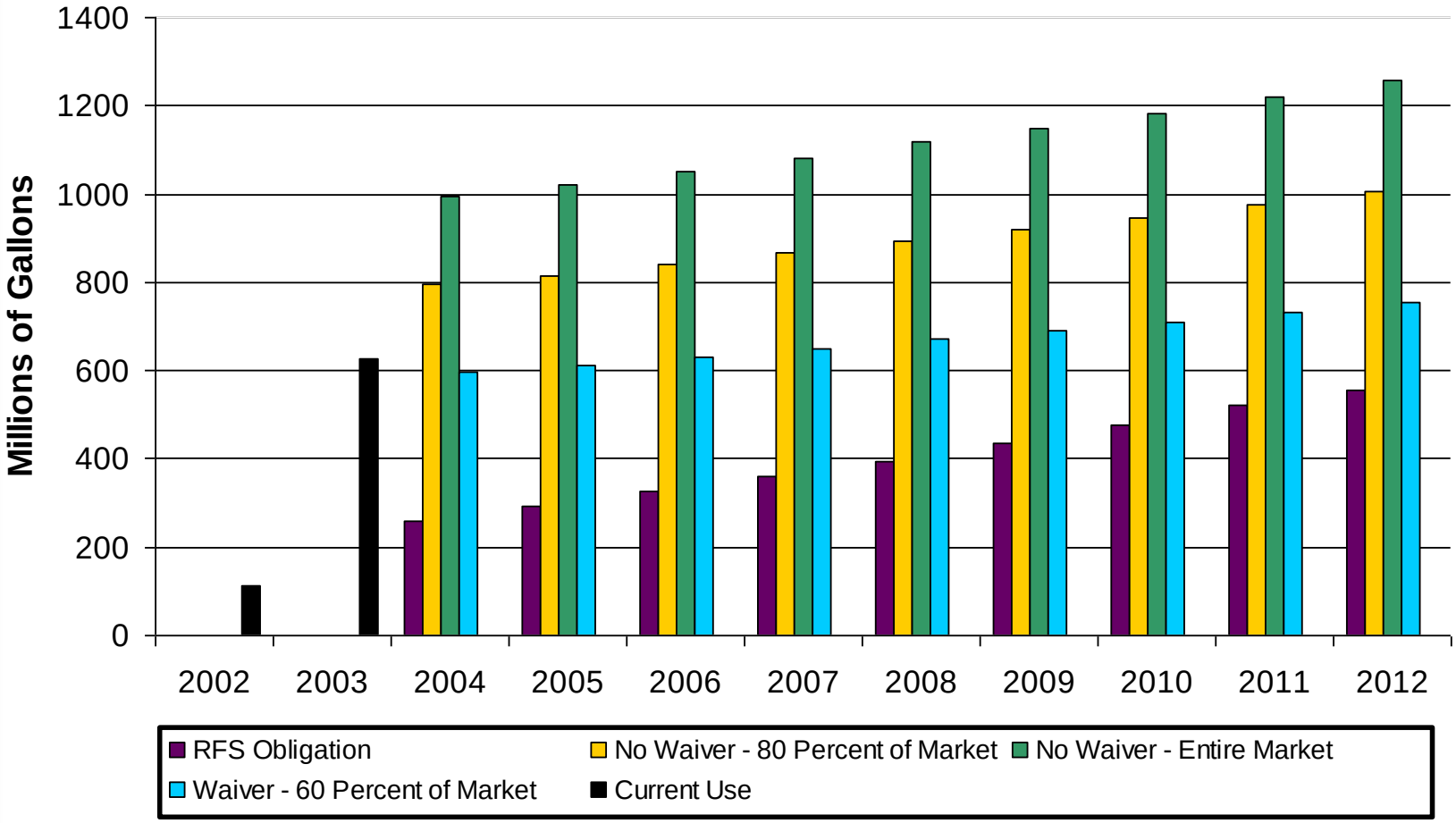
Anticipated Impacts of MTBE Removal

- Demand for ethanol will increase
  - Calif. will require significant quantities of ethanol
    - 560 to 580 million gallons by 2003
    - 760 to 990 million gallons by 2004
  - Current US ethanol production capacity approximately 3 billion gallons per year
  - Energy Commission survey (December 2002) of ethanol industry concludes that supply should be sufficient to meet California's incremental ethanol demand

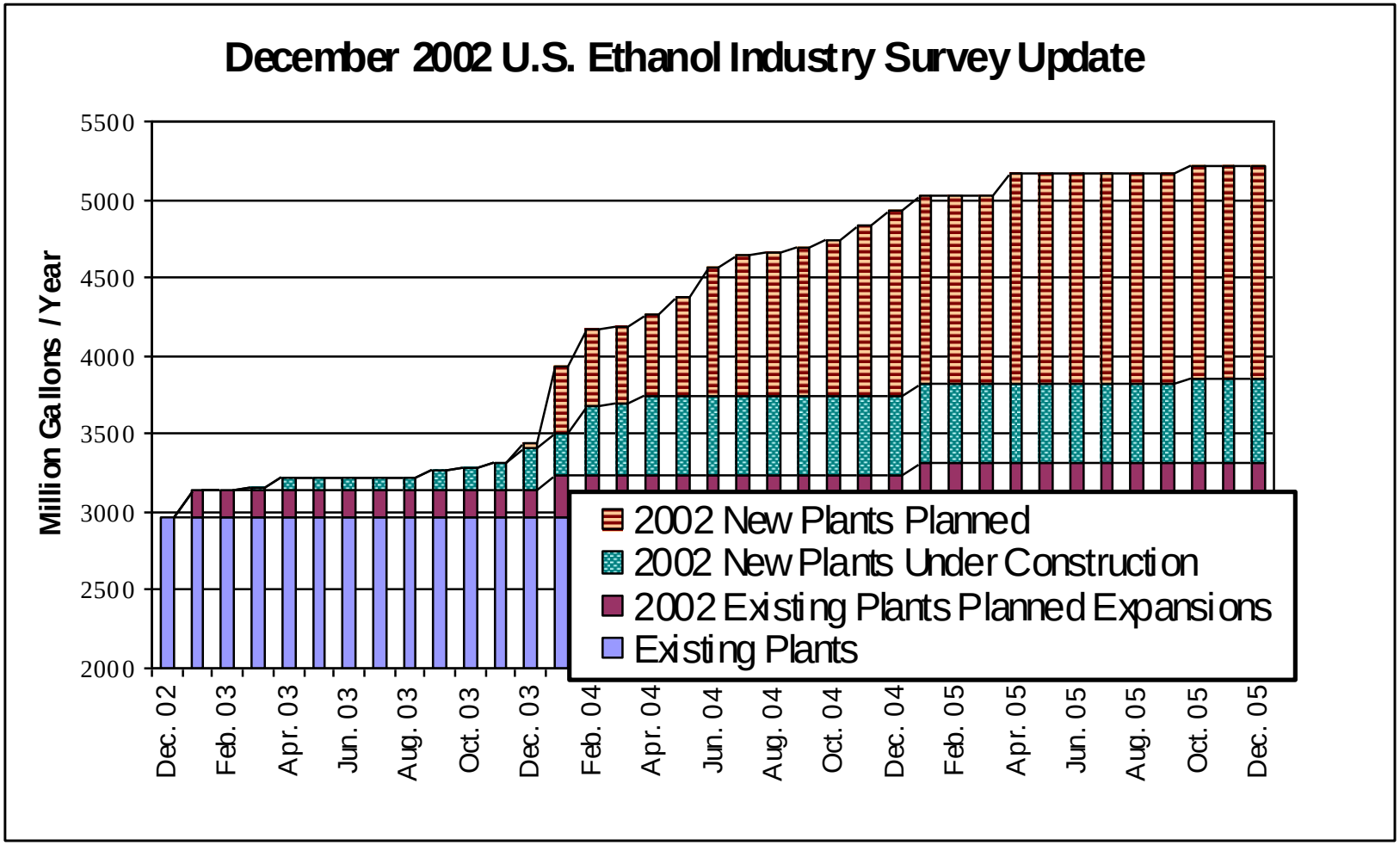
Projected California Ethanol Use
Base Case Gasoline Demand - 1.6 Percent Per Annum



Projected California Ethanol Use
High Case Gasoline Demand - 3 Percent Per Annum



Ethanol Survey Update



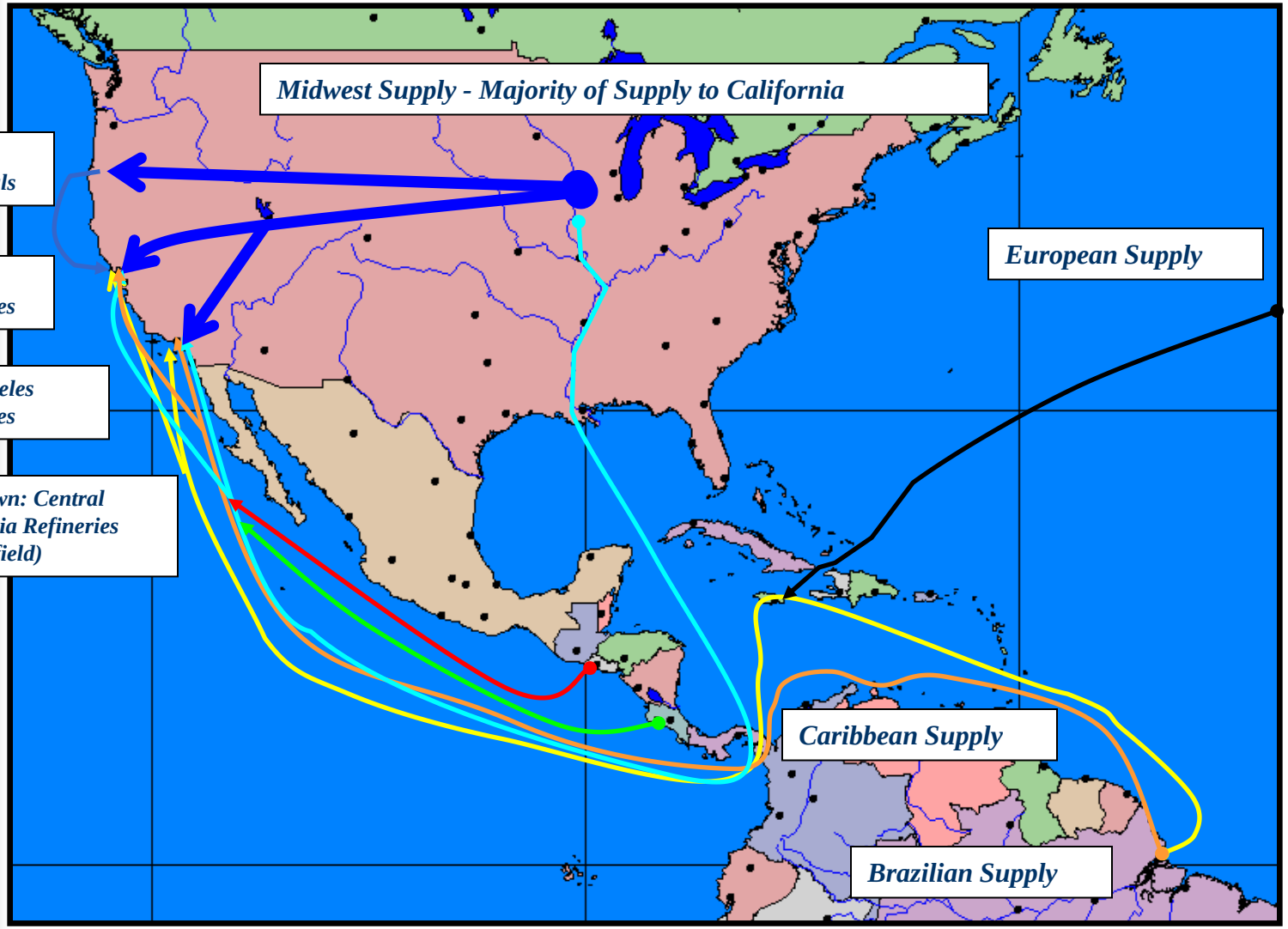
Survey Results - U.S. Ethanol Production Capacity (MM Gallons)

	2001	2002	2003	2004	2005
Existing Plants	2219	2967	2967	2967	2967
Existing Plant Expansions			147	242	320
New Plants Planned			40	1190	1354
New Plants Under Construction			262	502	542
Total	2219	2967	3416	4901	5183

Anticipated Impacts (cont.)

- Ethanol Logistics
  - Ethanol supplies will be delivered to California via rail and marine vessel
  - Ethanol is delivered to main staging areas before being trucked to gasoline terminals
  - Modifications nearing completion to allow terminal in Southern California to receive “unit trains”
  - Remaining terminal modifications scheduled for completion later this year
  - Large shipments of ethanol began to arrive in California during December of 2002
  - Refiners will try and keep ethanol inventories at high levels as a hedge against a potential interruption of deliveries

Ethanol Sources and Transportation



Anticipated Impacts (cont.)

- Reformulated gasoline production from California refineries will decline
  - Gasoline with MTBE at 11 vol. percent
  - Refiners must remove additional 5 percent of gasoline components prior to blending ethanol to avoid violation of volatility standards (Rvp)
  - Ethanol blended at nearly 6 vol. percent
  - Absent any other adjustments, gasoline production would decrease by 10 percent
  - But some refiners have:
    - Increased alkylate production, imported more blending components, converted some conventional gasoline to RFG & delayed transition away from MTBE
  - Summer 2003 production decline about 1 to 2 %

Anticipated Impacts (cont.)

- Imported components will have to increase
  - Production decline of 1 to 2 percent equates to a daily volume of 10-20 thousand barrels
  - Coupled with an expected demand increase of 1.6 to 3 percent, an additional 26 to 50 thousand barrels per day of blending components will be required to provide adequate gasoline supplies
  - Phase 3 RFG for ethanol blending is a more difficult formulation to produce for refiners outside the US
    - A number of the foreign refiners who produced summer grade Phase 2 RFG do not consistently produce Phase 3 RFG for ethanol blending at their facilities
    - 2 refiners have sent cargoes of the new summer RFG, but the ships have yet to arrive

Anticipated Impacts (cont.)

- Logistics
  - Marine logistics infrastructure already strained
    - tank storage capacity scarce
  - Ability of system to smoothly accommodate additional volume and segregation needs is greatest concern in California
    - Recent price increases in California are partially a result of a strained system
  - Marine infrastructure study underway by Stillwater Associates to be released in April

Other Issues Affecting California

- National energy legislation - under debate
  - Renewable fuel standard (RFS)
    - Adoption of RFS could significantly increase demand for ethanol, potentially straining supplies, unless “planned” capacity expansions receive funding and complete construction per announced schedules
    - Elimination of Federal oxygen requirement could help, but California is still expected to require significant amounts of ethanol regardless of the minimum oxygen requirement
  - National MTBE phaseout
    - Mandatory elimination of MTBE in rest of country would decrease gasoline supplies in the US
    - Demand for clean blending components to replace lost volume would increase
    - Sources from outside the US could command higher values

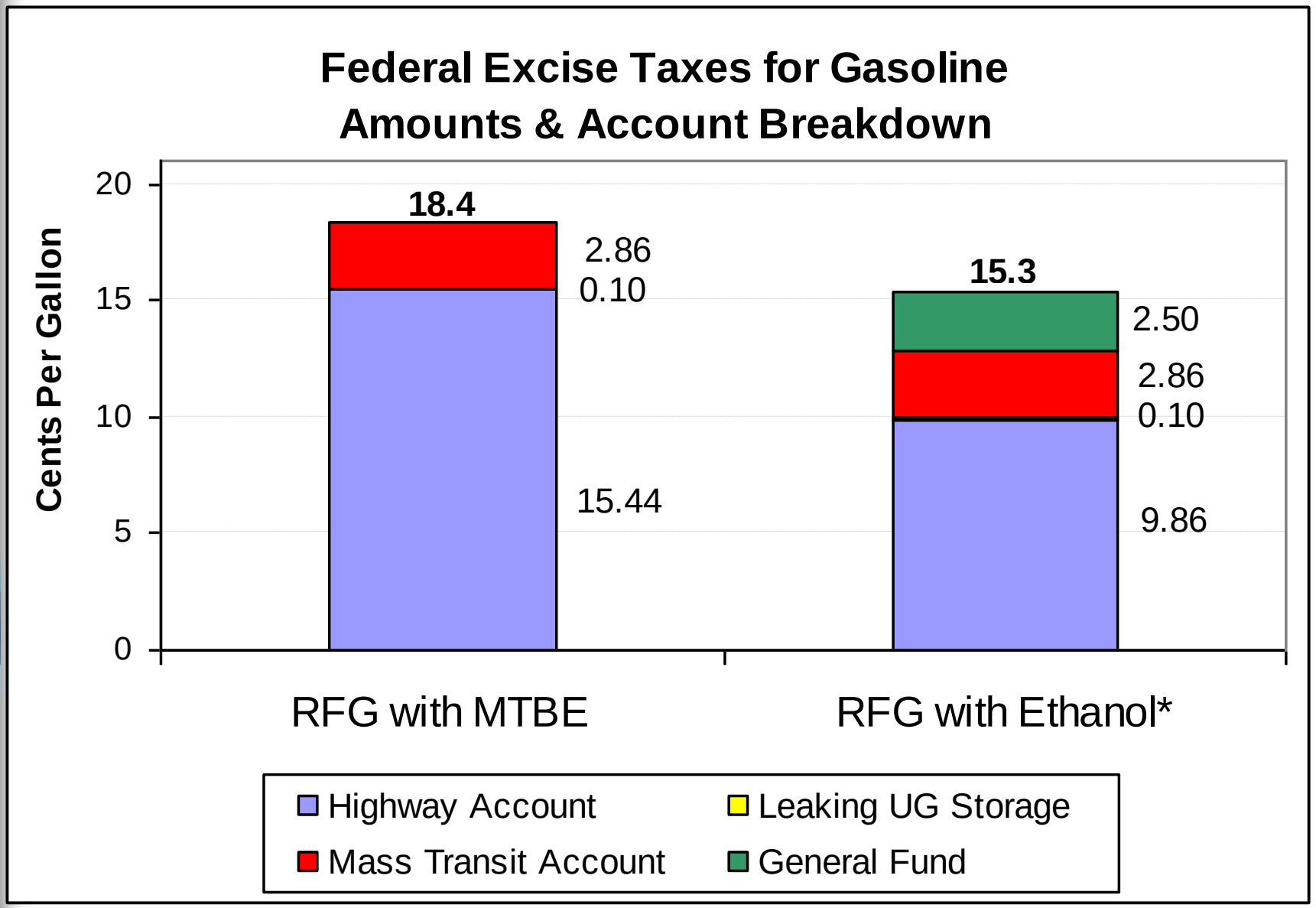
Other Issues (cont.)

- Regional MTBE bans
  - CT scheduled to phaseout MTBE by October 1, but their legislature is considering a delay
  - NY scheduled for end of year, rest of Northeast may or may not follow
  - Decreased availability of supplies cited by ESAI
  - NYMEX has also raised concerns about potential impact on the futures markets if multiple fuels
    - NY harbor is delivery point for futures contracts which specify federal RFG containing MTBE
    - No plans to offer futures contracts for RFG containing ethanol
    - Fewer contracts, less hedging opportunities and resulting increased volatility of gasoline prices in the region

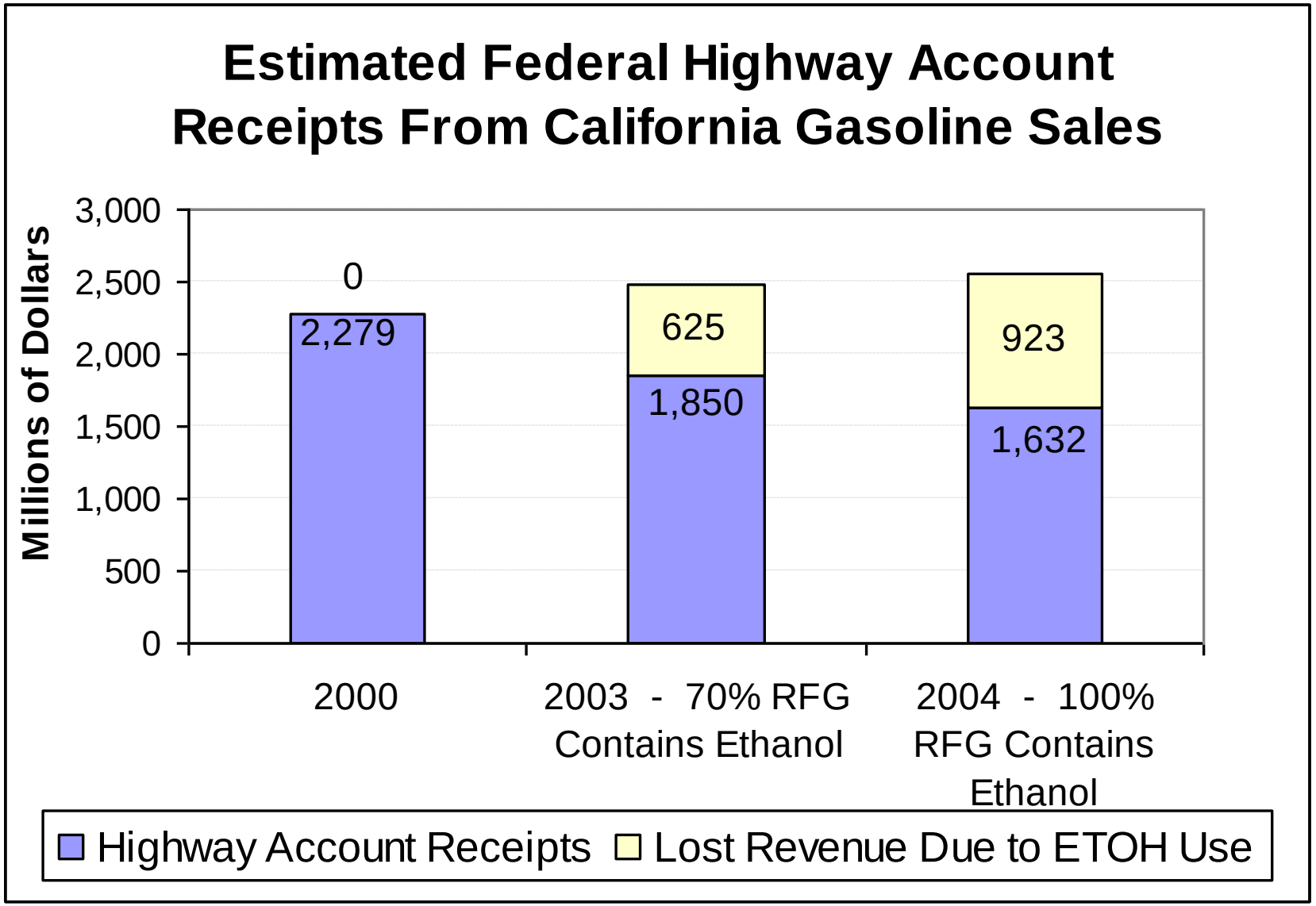
Other Issues (cont.)

- Cleaner fuel standards for gasoline and diesel fuel
  - Lower sulfur levels for gasoline and diesel fuel in the US may lead to further refinery consolidation
    - Additional need to import cleaner components
- Stricter fuel standards in other countries
  - Competition for clean components will increase unless refinery capacity expansions keep pace with growing demand
- Reduction of contributions to federal highway account
  - Use of ethanol reduces federal excise tax
  - California contributions will decline significantly

Ethanol Use Reduces Federal Excise Tax



Ethanol Use Decreases Highway Account Receipts



Study to Examine Causes of Today's High Gasoline Prices

- March 14 - Governor Davis orders investigation of high prices
  - Assessment will include gasoline, diesel fuel, natural gas and electrical generators
  - Energy Commission and Public Utilities Commission will conduct analysis
  - Study to be completed within 15 days

Closing Remarks

- Transition away from MTBE will be completed later this year
- Energy Commission will continue to monitor the transition and adequacy of supplies
- Growing demand for gasoline and anticipated production declines will increase the need to import clean blending components
- Costs to produce gasoline may be greater on a sustained basis