

## Strategic Factors Impacting The California Crude Oil Market



### California Independent Petroleum Association 28<sup>th</sup> Annual Meeting

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Hyatt Regency Huntington Beach

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## Presentation Overview



- **California Crude Oil Market**
  - California Refinery Demand
  - ANS Supplies
  - California Supplies
  - Foreign Supplies
- **Factors Impacting California Crude Oil Price**
  - California Benchmark Crude Oil Price
  - Import Costs
  - Global Supply-Demand Balance
  - International Crude Price
  - California Crude Oil Quality Differentials
- **Closing Remarks**

## California Crude Oil Marketing Regions



- Refineries in San Francisco and Los Angeles are dependent on ANS and imported crude oil deliveries by tanker.
- Refineries in Central California process SJV and OCS crude.
- Closure of Shell Bakersfield refinery pending.

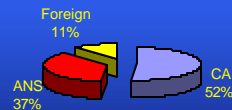


## California Crude Oil Supply Shift

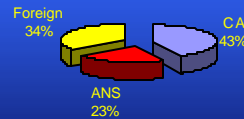


- *Decline in ANS supplies has led to increased dependence on foreign crude oils.*
- *Refiners must create strategies for foreign crude oil supplies.*
- *Growing role of imported crudes creates basis for projecting the value of California crudes.*

**1997 CRUDE OIL DEMAND**  
1,617 Thousand Barrels Per Day

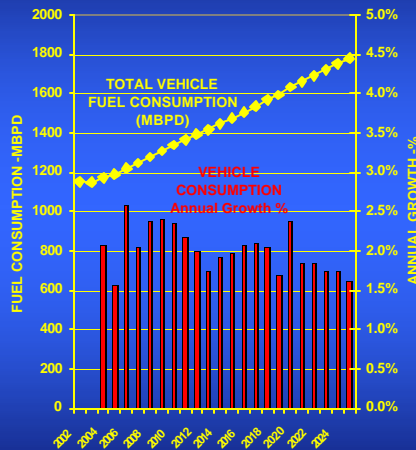


**2003 CRUDE OIL DEMAND**  
1,791 Thousand Barrels Per Day



Source: EIA, CEC, Purvin & Gertz Analysis

## California Fuel Consumption Growth



Source: CalTrans

*California population growth will continue to drive demand growth for gasoline, jet and diesel fuels.*

*California refinery crude runs are likely to creep further, but more refined product imports are also expected.*

*California refiners will import more crude oil to meet growing demand.*

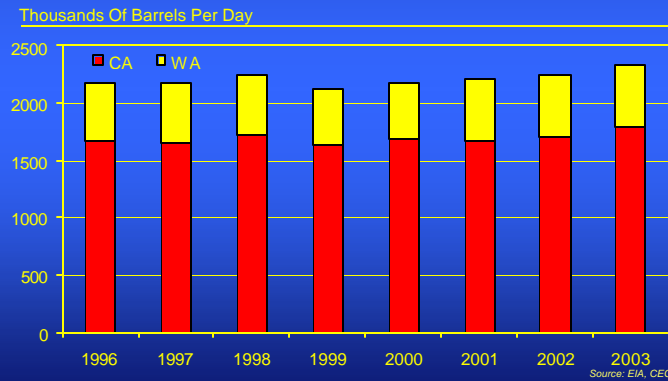
## Historical West Coast Refinery Crude Runs



Crude runs increased 4% in 2003:

- MTBE Phase-out
- Economic recovery

Washington refineries account for roughly 23% (~540 MBPD) of crude demand.

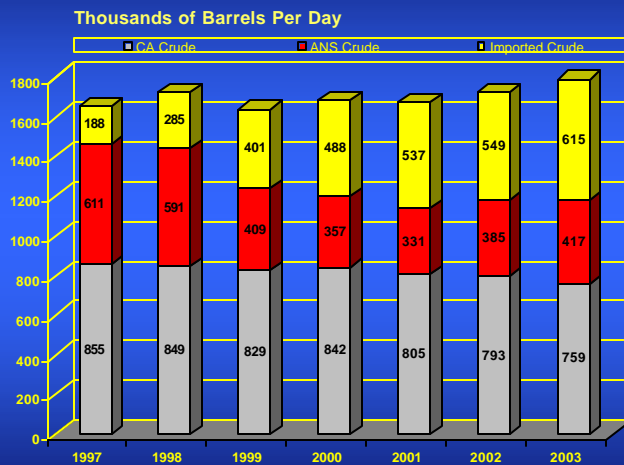


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## Historical California Crude Runs By Source



Source: CA DOGGR, CEC, EIA, Purvin & Gertz Analysis

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## ANS Disposition

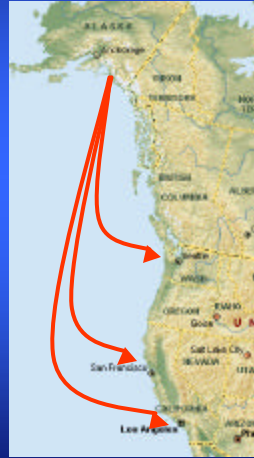


*ANS deliveries have favored Washington over California*

- Lower transportation costs
  - Better utilization of Jones Act tankers
- Limited infrastructure for larger foreign crude tankers

*Some west coast refiners control a significant share of ANS marketing*

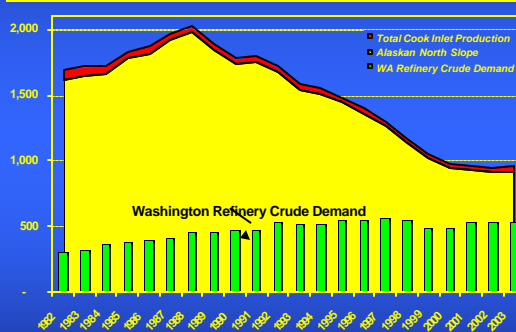
- ConocoPhillips
- ExxonMobil
- BP



## Historical ANS Production



(Thousand Barrels per Day)



Source: EIA, AK Dept. Of Oil & Gas

*ANS declines have slowed due to recent recovery enhancements & development of new fields.*

*ANS deliveries to California have declined.*

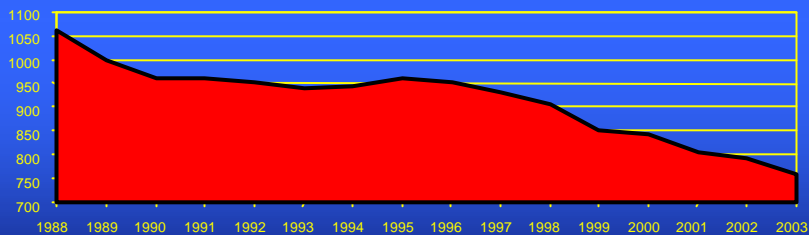
*Washington refineries have continued to rely on ANS.*

## California Oil Production Declines



- Total California production declined at an annual rate of 1.9%.
- LA Basin crudes declined at a faster 4% annually.

Thousands Of Barrels Per Day



## Foreign Crude Sources



### Foreign supplies

- Arab Gulf
- S. America
- Mexico
- Canada
- Asia

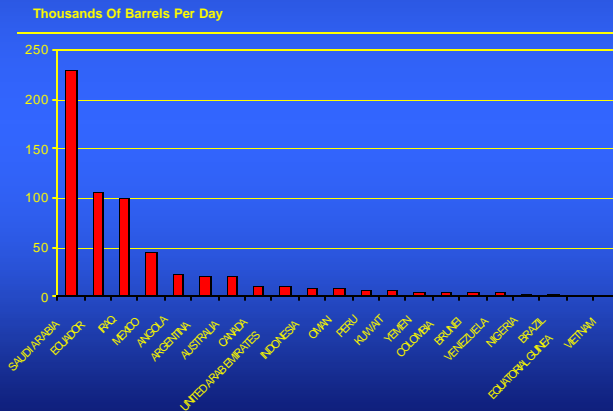
### International crude oil price linkages

- Mexico
- S. America
- Arab Gulf

## 2003 California Foreign Crude Oil Imports



*The Arab Gulf crudes make up 58% of foreign imports, while Latin American crudes accounted for 31%.*



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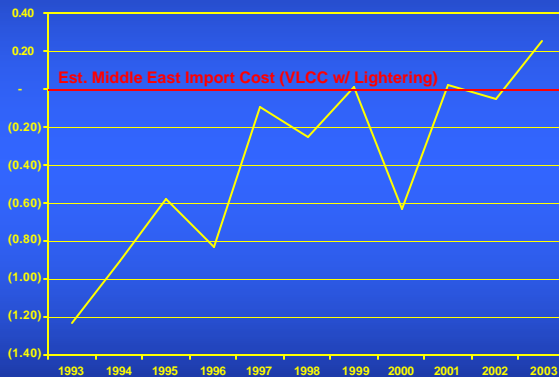
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## Benchmark Crude Pricing Basis: Import Parity



ANS – Middle East Import Parity Differential, \$/BBL



Source: Platts, Purvin & Gertz Analysis

*ANS can be used as a benchmark crude for evaluating U.S. West Coast crude oil prices.*

*ANS prices have gradually risen to levels consistent with delivered imports from Middle East (Western Hemisphere Import Parity Pricing).*

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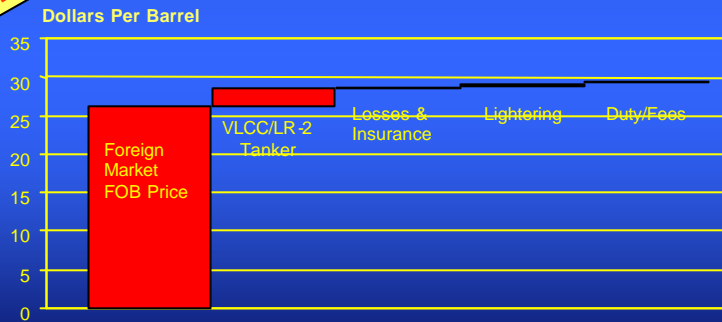
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## Delivered Costs For Foreign Crudes

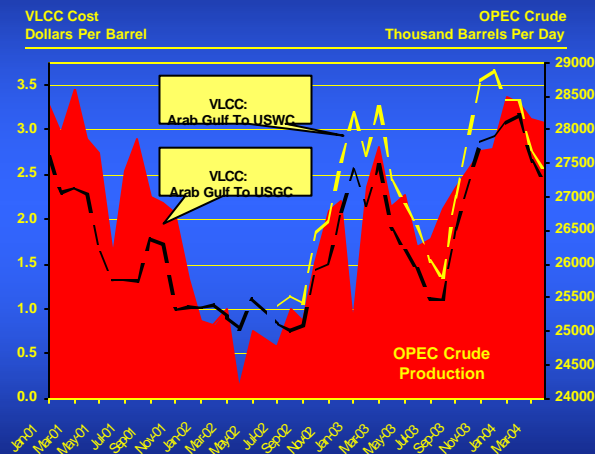


- Port and terminal infrastructure improvements may eventually reduce delivery costs.

ILLUSTRATIVE EXAMPLE



## Historical Arab Gulf Tanker Costs

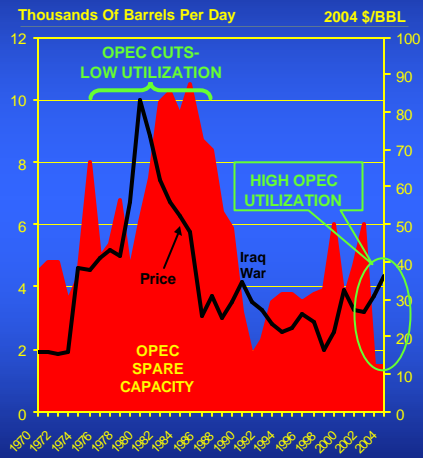


*Foreign flagged crude oil tanker fleet is operating near full capacity.*

*As OPEC production and exports increase, tanker costs are likely to increase.*



## Crude Price And OPEC Spare Capacity



Source: IEA, Platts

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Strong demand growth led by Asia and U.S. economic recovery has cut spare OPEC crude oil production capacity.

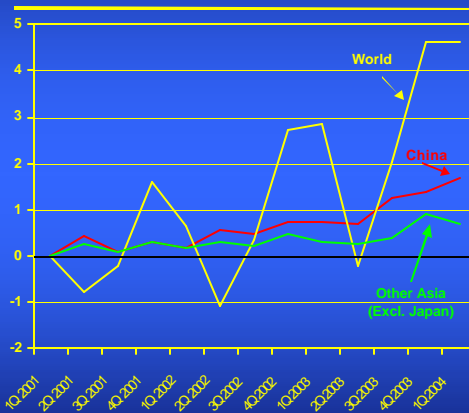
Despite production increases by OPEC and Former Soviet Union, crude oil inventories remain tight.

Unlike previous oil shocks, the current price environment is accompanied by high OPEC and non-OPEC utilization.

## World Crude Oil Demand Growth



Oil Demand Growth From 1Q 2001  
(Millions Of Barrels Per Day)



Source: IEA

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Seasonal global petroleum demand usually peaks in winter months.

Growth in worldwide demand over 2<sup>nd</sup> Half of 2003 was roughly 4.5 million barrels per day.

Over the last 3 years, roughly 65% of worldwide demand growth was driven by Asian countries.

## Crude Oil Valuation Overview



### Regional Benchmark Crude Pricing

- International Import Parity
- International Export Parity
- Marginal Production Costs

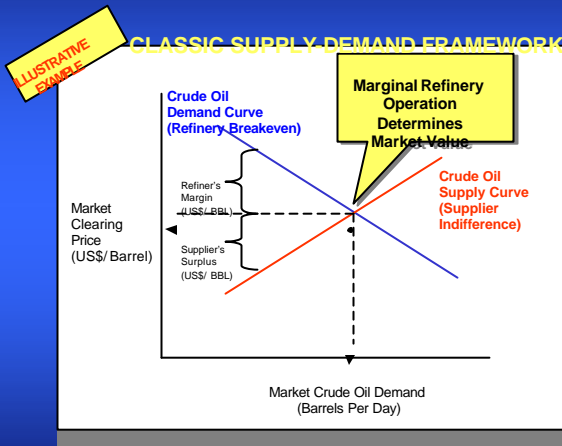
### Value Adjustments For Crude Quality

- Refinery economic indifference



CRUDE OIL VALUATION

## Estimating The Crude Oil Quality Differential



### Key Assumptions

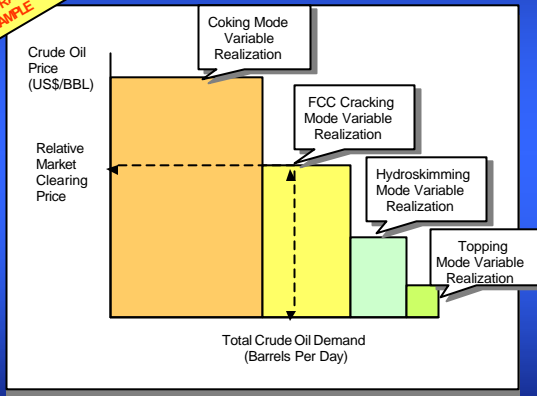
- Refineries will expand crude oil consumption until favorable economics disappear (marginal refinery mode).
- Crude oil supply costs based on market alternatives or marginal production costs.

## Determining Crude Oil Quality Differentials



**ILLUSTRATIVE EXAMPLE**

### REFINERY OPERATING MODE ECONOMICS



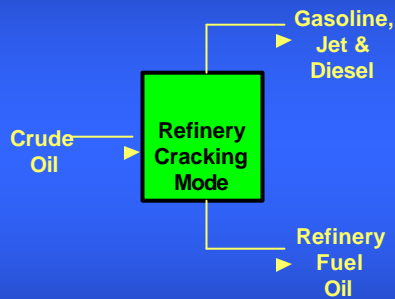
*Crude oil quality differentials are based on the crude oil's relative value in the marginal refinery mode.*

*The marginal refinery mode in the West Coast is usually FCC Cracking, which produces residual fuel oil.*

## Main Factors Impacting Crude Quality Differentials



- Refinery cracking yields
  - Fuel oil yield
    - Vacuum residue
    - Viscosity blending properties
  - Gasoline yield
- Refinery processing cost
  - Sulfur
  - Nitrogen/ Metals
  - Gas oil volume
- Refined product prices
  - Light product – fuel oil differential
  - Marginal product disposition
    - Export parity
    - Import parity



## Recap



- California refineries are expected to expand as California product demand grows.
- Foreign crude imports will continue to increase as ANS and California supplies decline.
- Light sour crude oil from the Arab Gulf and Latin America will be the main source of foreign crude.
- Quality differentials for crude oils are usually dependent on the economics of the marginal refinery mode.
- Crude oil supplies in California are expected to follow import parity.
- Worldwide petroleum demand growth, particularly in Asia, has created a tight market for crude oil and tanker services.
- VLCC tanker costs from the Arab Gulf to the U.S. can have a significant impact California crude oil prices.

## Outlook And Comments



- Although significant risk exists, strong Asian demand growth is likely to continue requiring increases in worldwide production.
- Supply concerns related to Middle East tensions have recently moved crude oil prices beyond industry fundamentals.
- Iraq and Former Soviet Union are seen as the main wildcards for increased crude supplies.
- Near-term crude oil prices should ease as non-OPEC production increases in 2004 and 2005.
- Long-run crude oil prices should more closely follow reserve development costs.
- Some California refiners may elect to import product rather than increase crude run due to high cost of expansion and difficulty with latest CARB specifications.

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