BAKER & O'BRIEN
INCORPORATED

# Southern California Crude Oil Outlook

**Prepared**
**for**
**Plains All American Pipeline, L.P.**
**July 2007**

# Key Assumptions Used in Projections

## ANS Crude Oil

- Current (2006) production of 781 MB/D will decline at an average of 2.8% per year through 2021.
  - Derived from the State of Alaska's most recent forecast.
- ANS is supplied preferentially to Alaska and the Pacific Northwest first.
  - Most of Alaska's needs are inland and not accessible to imports.
  - Difficult marine import logistics and calcined coke production in the Pacific Northwest.
- Deliveries to Hawaii are currently zero and assumed to continue to be so in the future.

# Key Assumptions Used in Projections (continued)

- **ANS Crude Oil (continued)**
  - Balance goes to California with preference given to Northern California.
    - Southern California refiners appear poised to be “weaned” away from ANS more rapidly**.**
  - Projections do not include potential ANWR volumes.
    - Not expected to start production for at least ten years after approval (2018 - if approved at the end of 2007).
    - Production expected to increase gradually over a five-year period to at most 350 MB/D.
    - Not likely to affect projections for Southern California use.

# Key Assumptions Used in Projections (continued)

- **California Crude Oil**
  - Current (2006) production of 680 MB/D will decline at 3.5% per year through 2021.
    - Based on recent history.
  - Crude is preferentially supplied to Bakersfield and Santa Maria area refineries first.
    - These areas do not have access to imports.
  - Balance goes to Northern and Southern California with preference given to the North.
    - Recognition of logistical difficulty of marine imports relative to Southern California.

# Key Assumptions Used in Projections (continued)

- **Refinery Runs**
  - Increased by capacity creep and expected short-term capacity additions.
    - Capacity creep assumed to be 1.25% per year.
    - Expected capacity additions: 50 MB/D in Southern California (2012).
- **Crude Oil Imports**
  - Imports are currently sourced from the Middle East, Latin America, and West Africa, with some small volumes from the Pacific Rim and Canada.
  - Current level and distribution of crude imports, escalated for capacity creep (1.25% per year), remains through projected period.

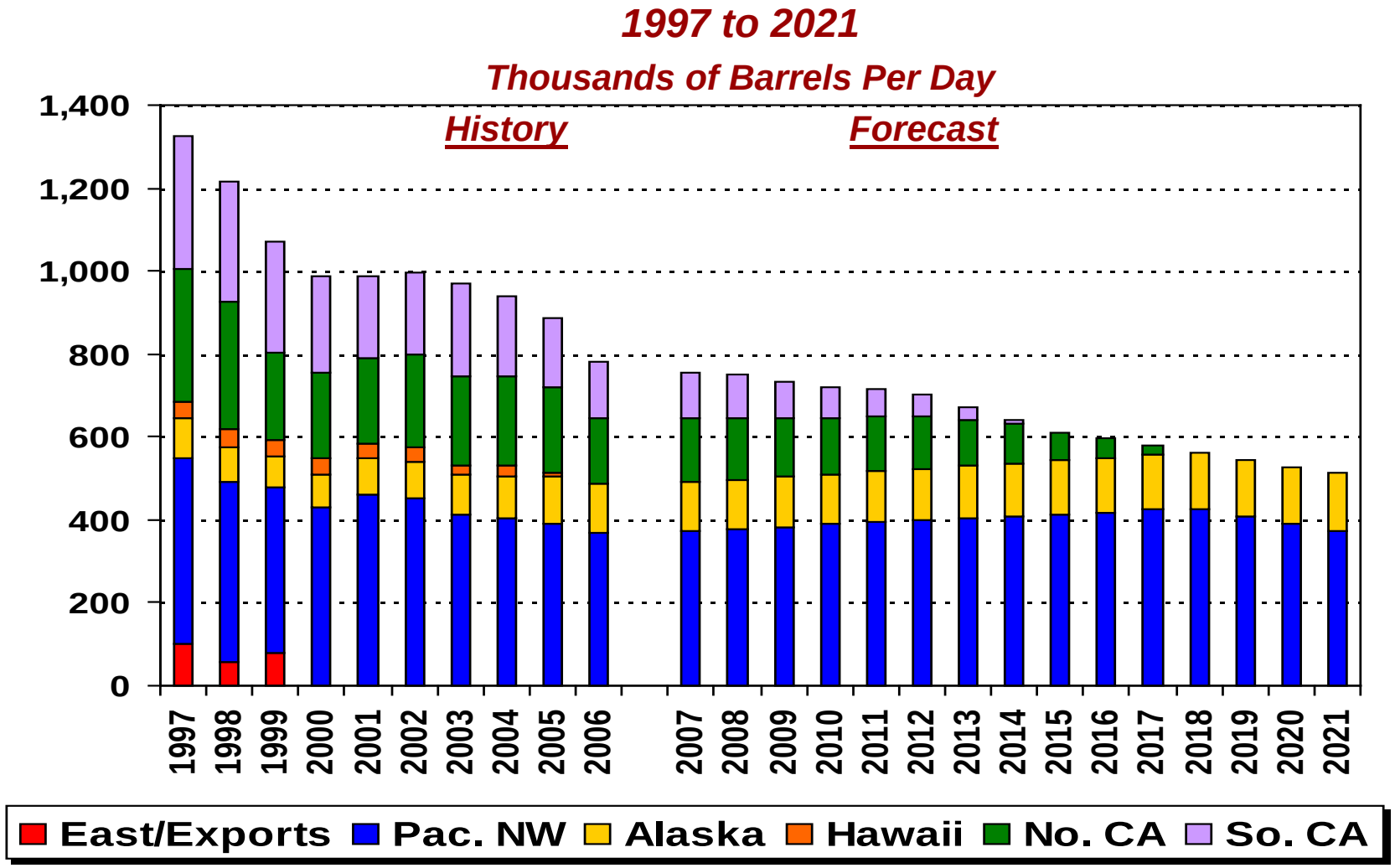
# Key Assumptions Used in Projections (continued)

- Increasing shortfall of ANS and California crudes made up with additional imports.
  - ANS: Generally replaced by Middle East crudes.
  - California Crudes: Generally replaced by a combination of crudes from Latin America, West Africa, Canada, and the Middle East.

- **Incremental Canadian imports will be high TAN, high sulfur, heavy oil sands based crude oil.**
  - Projected to be available starting in 2014.
  - Pipelined to deepwater port in Northern British Columbia.
  - Approximately 110 MB/D by 2021.

- **Incremental West African imports will be high TAN, low sulfur, heavy crudes.**
  - Approximately 160 MB/D by 2021.

# ANS Crude Oil Production & Disposition

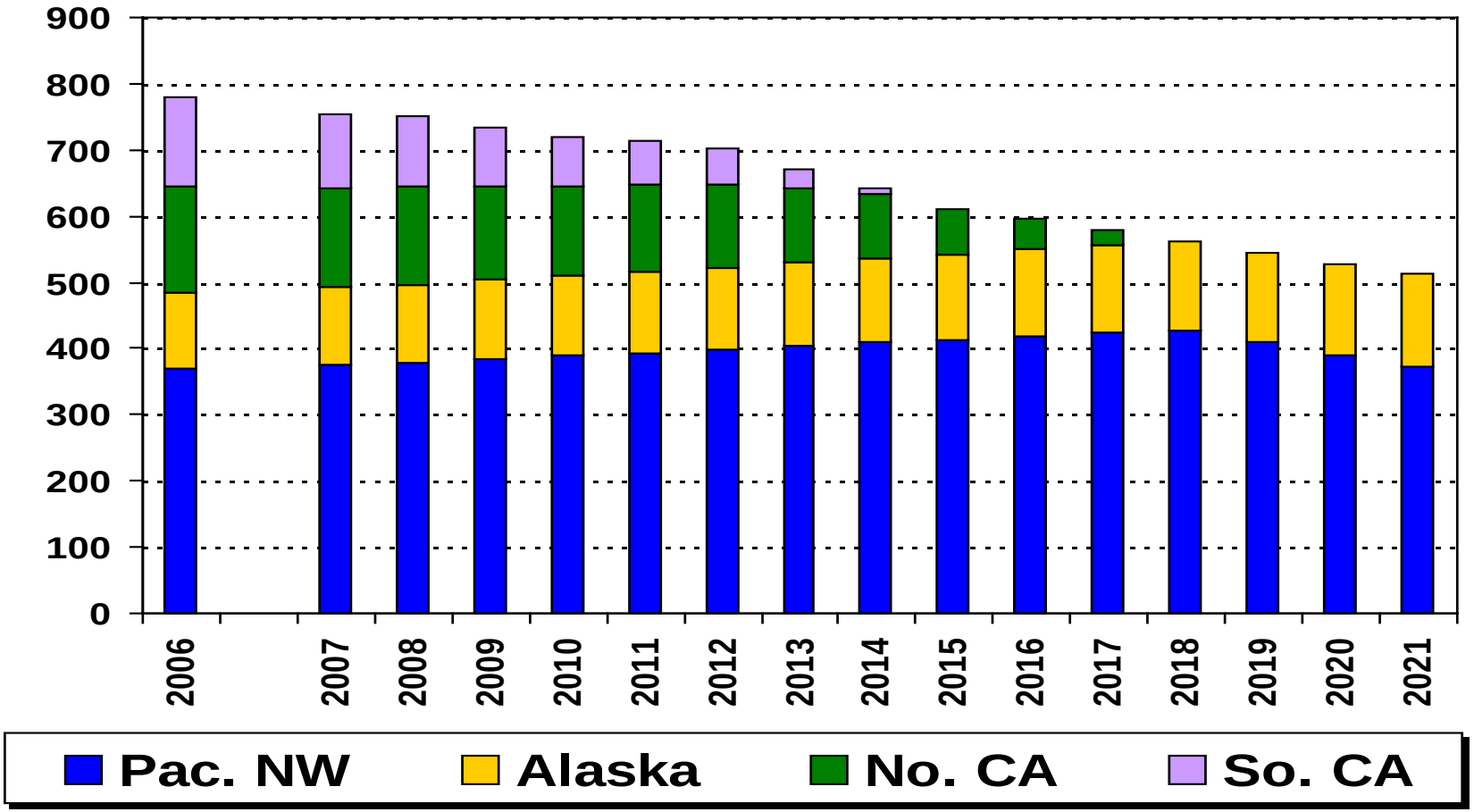



BAKER & O'BRIEN
INCORPORATED

# ANS Crude Oil Production & Disposition Forecast

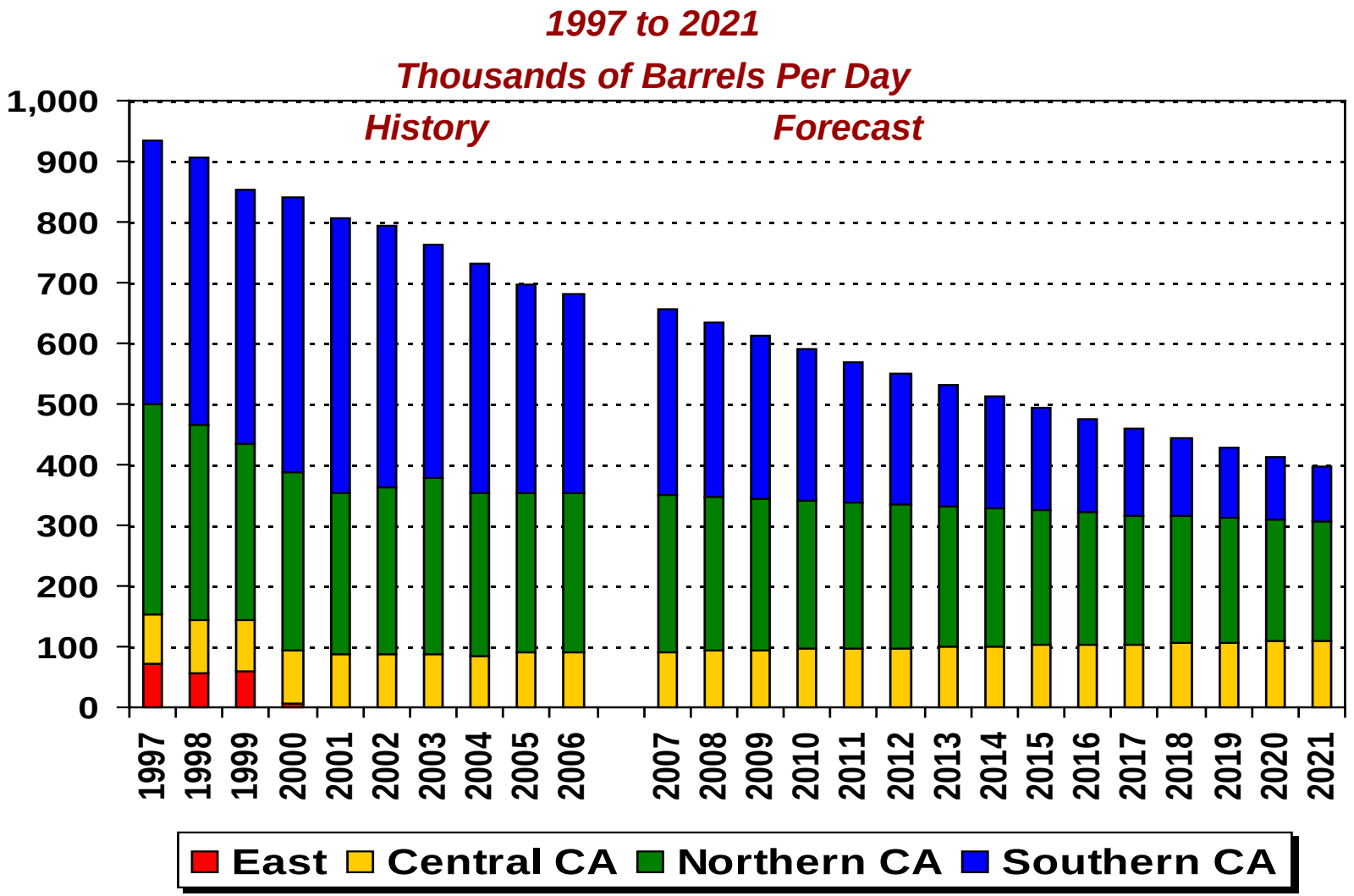
***2007 to 2021***

***Thousands of Barrels Per Day***



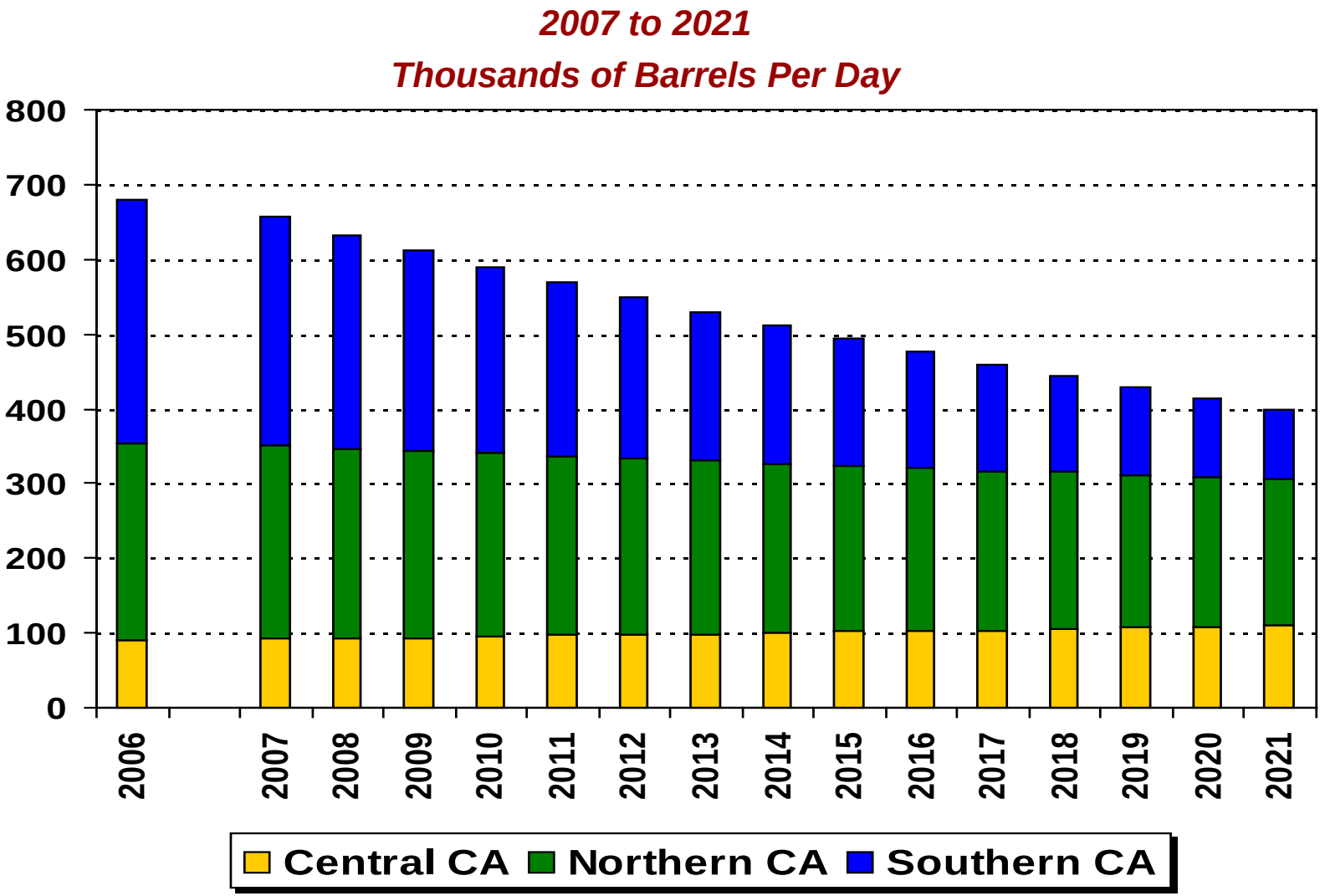

BAKER & O'BRIEN
INCORPORATED

# California Crude Oil Production & Disposition



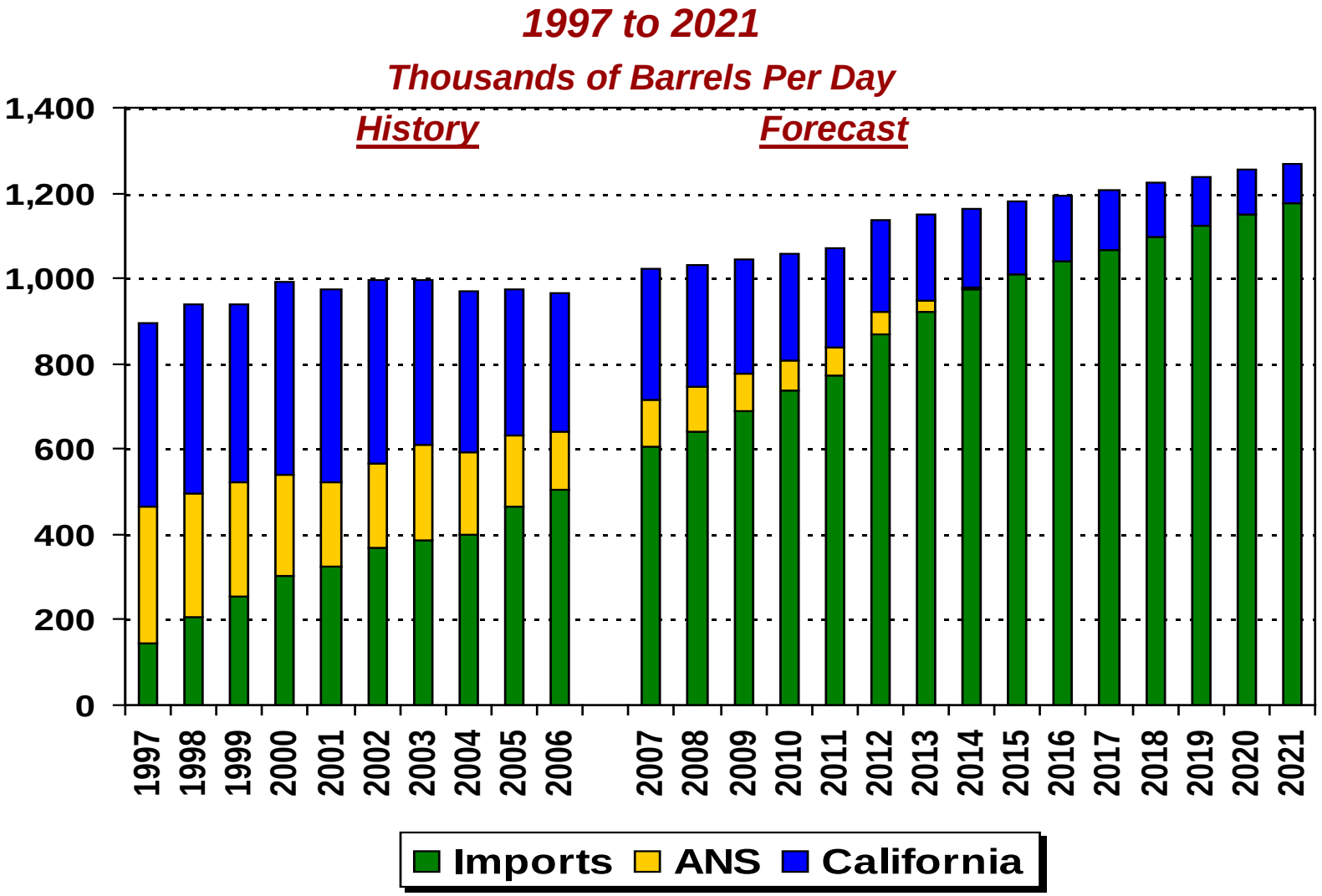

BAKER & O'BRIEN
INCORPORATED

# California Crude Oil Production & Disposition Forecast



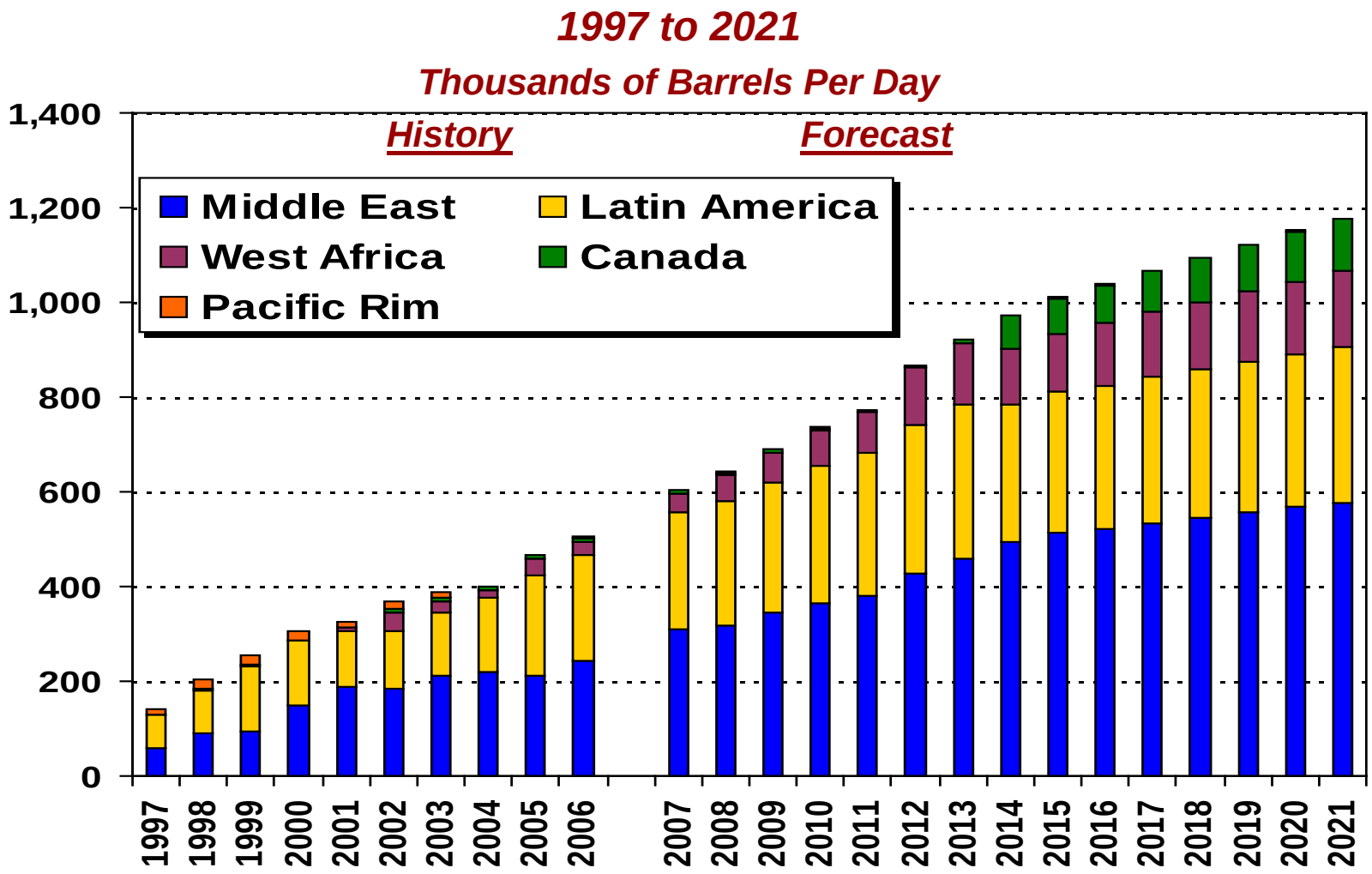

BAKER & O'BRIEN
INCORPORATED

# Southern California Refinery Crude Oil Runs



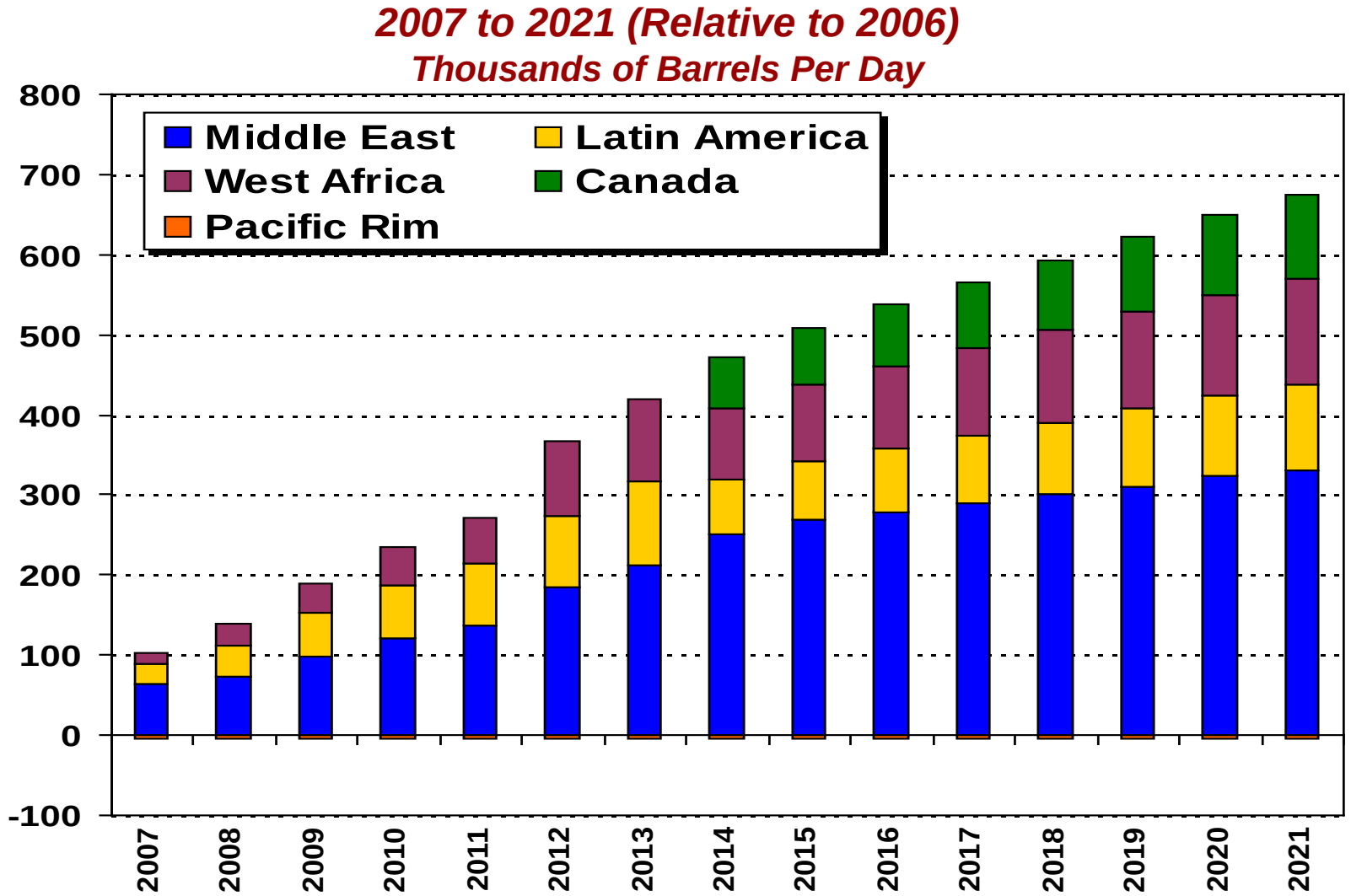

BAKER & O'BRIEN
INCORPORATED

# Southern California Imported Crude Oil Supply



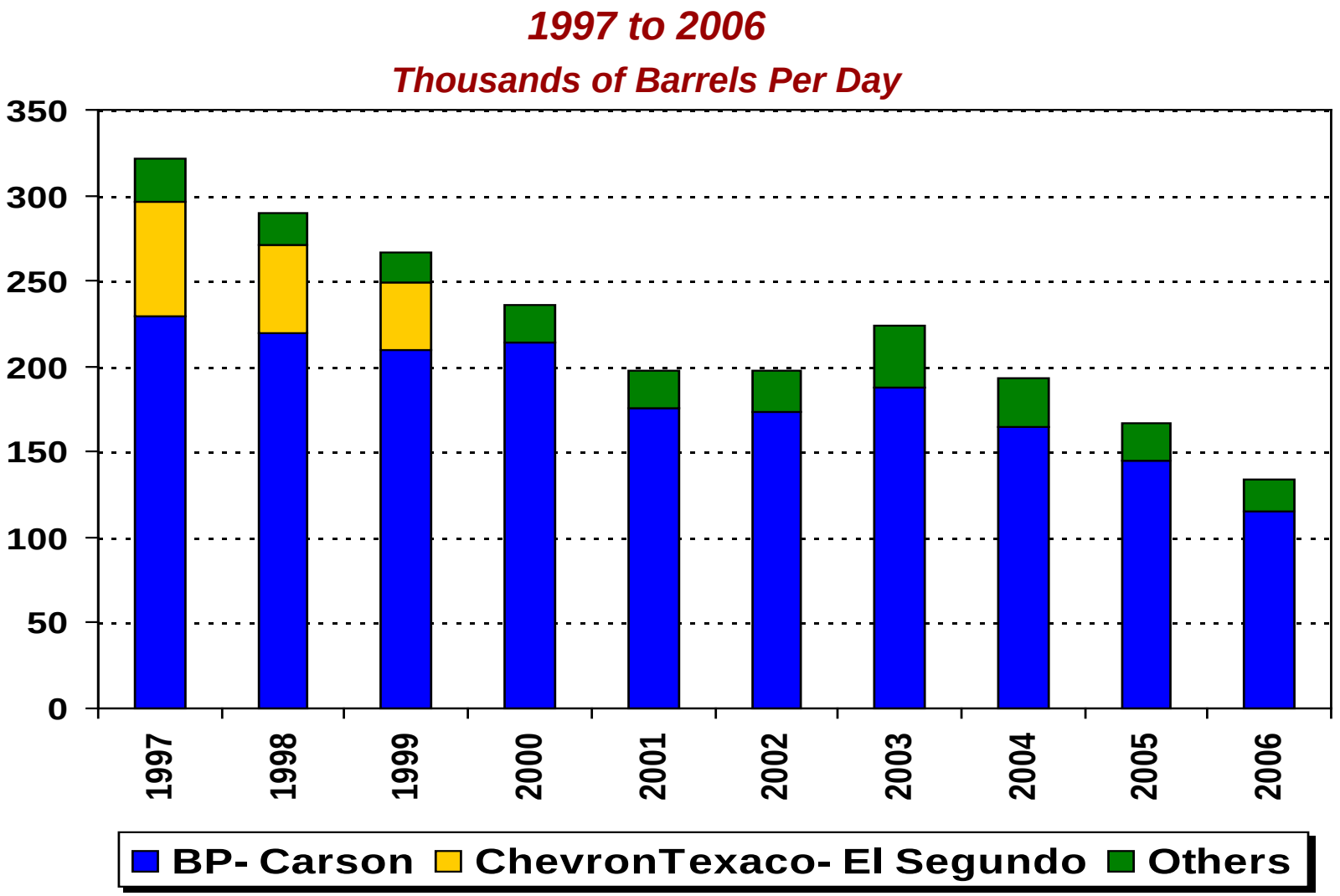

BAKER & O'BRIEN
INCORPORATED

# Southern California Incremental Crude Oil Imports




BAKER & O'BRIEN
INCORPORATED

# Southern California ANS Supply History




BAKER & O'BRIEN
INCORPORATED

# Southern California - Observations

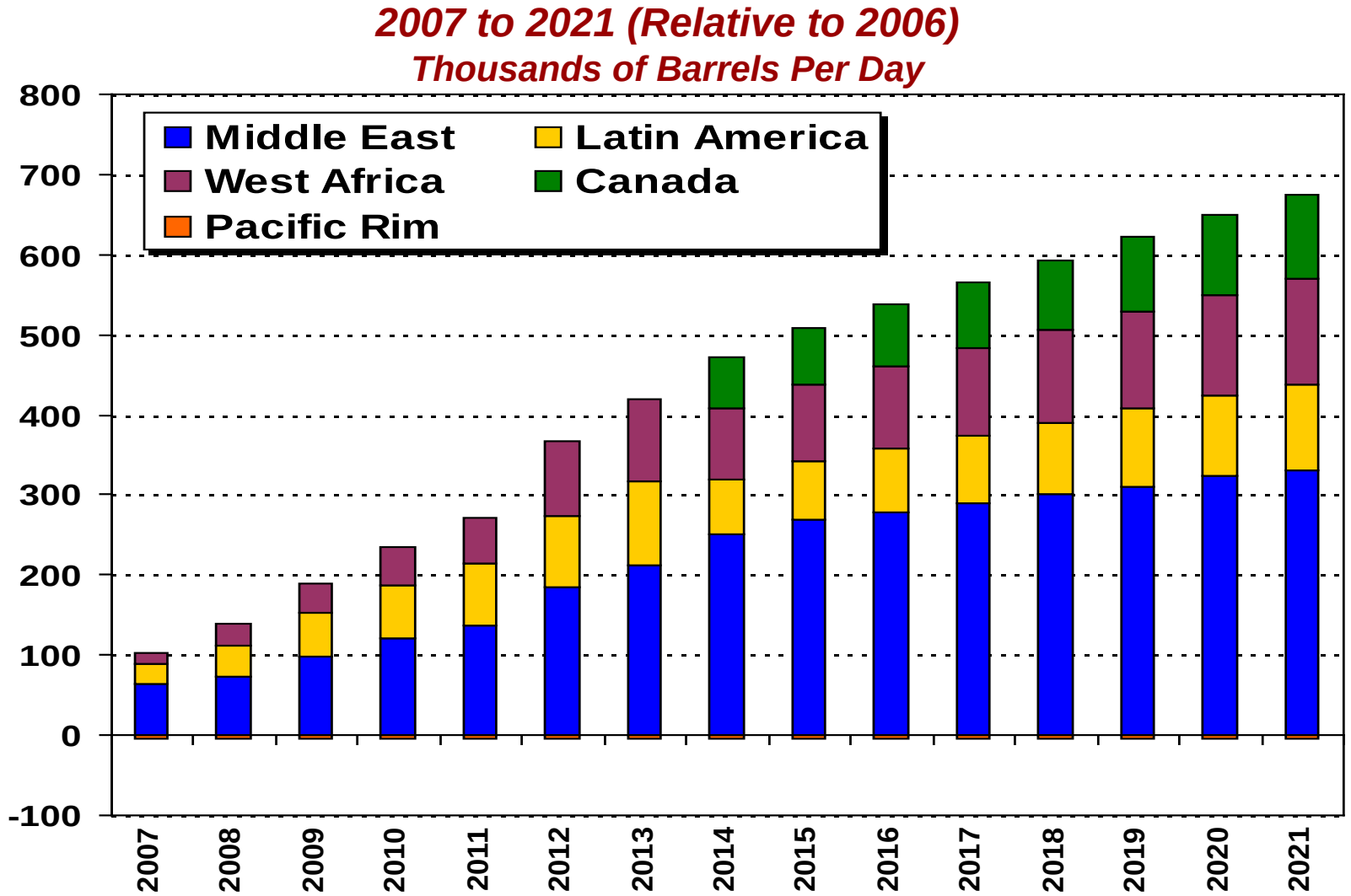
- **Future Southern California crude supply will be increasingly dominated by imports. By the end of the forecast period (2021):**
  - Crude imports will be about 1.2 MMB/D (over 90% of total crude runs) versus current level of about 0.5 MMB/D (about 52% of total crude runs).
  - The Middle East will be the primary source of total crude imports.
    - About 575 MB/D or about 50% of total crude imports.
  - Imports of "new" Canadian crude, starting in 2014, will increase to about 110 MB/D.
  - Imports of new West African crudes will increase from current low levels to about 160 MB/D.
  - Latin American imports will increase steadily to about 330 MB/D from the current level of 220 MB/D.
  - Imports from the Pacific Rim will be minimal.

BAKER & O'BRIEN INCORPORATED

# Southern California - Observations (continued)

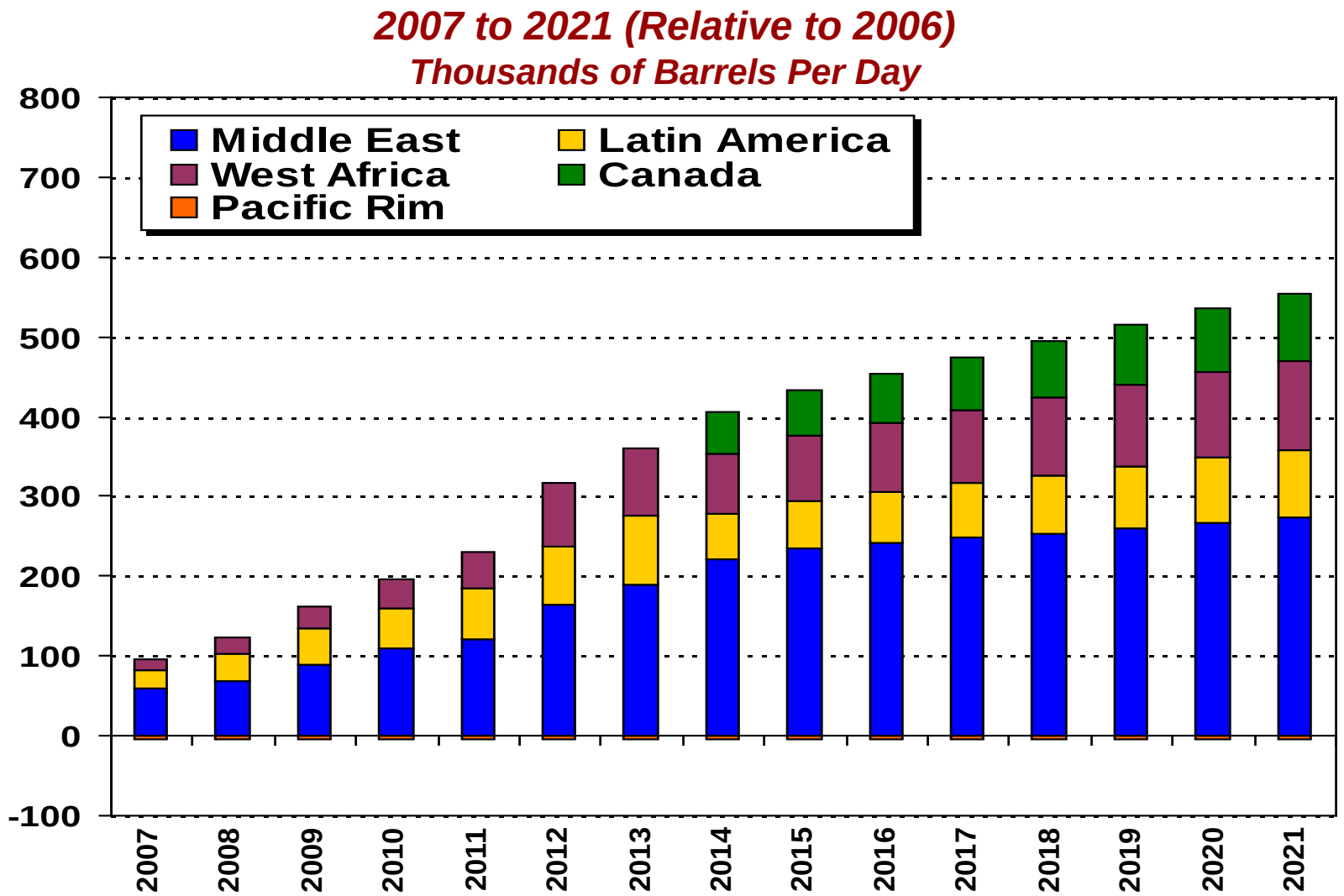
- **ANS use will decline steadily and be eliminated in 2015.**
  - BP is currently the dominant user - over 85% of 2006 total.
    - Share of ANS production declining faster than average.
    - Not a major future player in Alaskan oil exploration.
    - Southern California calcined coke business may not be strategic (as opposed to the Pacific Northwest).
    - Will preferentially run its declining proprietary ANS at its Pacific Northwest refinery.
    - Will likely continue aggressive substitution with imports at its Carson refinery.
  - Other users can substitute easily.

# Southern California Incremental Crude Oil Imports




BAKER & O'BRIEN
INCORPORATED

# Southern California Incremental Crude Oil Imports – Sensitivity Case
## (2.84%/Yr. CA Crude Production Decline and 0.70%/Yr. Refinery Capacity Creep)




BAKER & O'BRIEN
INCORPORATED

# Limitations

The information contained in this study was developed based on information available to us at the time this study was prepared. Analysis, data, and conclusions are limited by the assumptions stated herein and any other specific limitations noted. We relied on the veracity of publicly available information and other non-confidential information unless we had specific reason to doubt it.

Baker & O'Brien's compensation for this work was not, and is not, contingent upon any transaction, contract execution, or estimate of value that might favor the cause of Plains All American Pipeline, L.P., their subsidiaries, or any other party.

We reserve the right to amend and/or supplement this study in the event that additional information, valid at the time this study was issued, becomes available in the future.