

Western States Petroleum Association

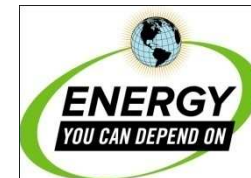
Attachment 2

WSPA Presentation – RECLAIM SOx Shave

SCAQMD Refinery Committee

Presented by
Cathy Reheis-Boyd
President, WSPA

September 22, 2010



Where are we today?

- WSPA met with District staff more than 30 times since 2008 rule development began
 - Provided cost numbers to the District from WSPA's 3rd party Consultant, Environ
 - Individual companies have met with the District's consultants and District Staff to understand compliance costs
 - Offered Refinery tours to Board members
- July 30, 2010 WSPA proposed an alternate shave methodology to District Staff
- August 18, 2010 Refinery Committee meeting:
 - WSPA presented a new position from 25%/3 TPD shave by end of 2014 as required by the AQMP to 33% (3.9 TPD) by end of 2019 and District staff came back with 41% by end of 2014 and 55% (6.1 TPD) by 2019
 - Compliance costs and treatment of RTC's are two core unresolved issues that remain between WSPA and the District
 - Refinery Committee suggested WSPA and District come together on a shave
- September 16, 2010 WSPA President presented a revised proposal to Dr. Wallerstein; discussed by phone on September 17
 - WSPA proposed 40% (4.7 TPD) shave, with 3 TPD achieved by the end of 2014 AQMP target date and the remaining 1.7 TPD shaved by end of 2019
 - Dr. Wallerstein uncomfortable with WSPA's proposal; did not move from 55% but agreed to additional dialogue
- September 21, WSPA President and team and Barry Wallerstein and Staff met
 - Thoughtful dialogue; continue to discuss and resolve differences on treatment of RTC's and cost. Intent is to inform Socioeconomic Report and Board decision.

WSPA RECLAIM SOx Proposal: September 16, 2010

- Emission Reductions (RTC): 4.7 TPD reduced
- Universe of Sources: 11.77 TPD
- Percent Shave: $4.7 / 11.77 = 40\%$

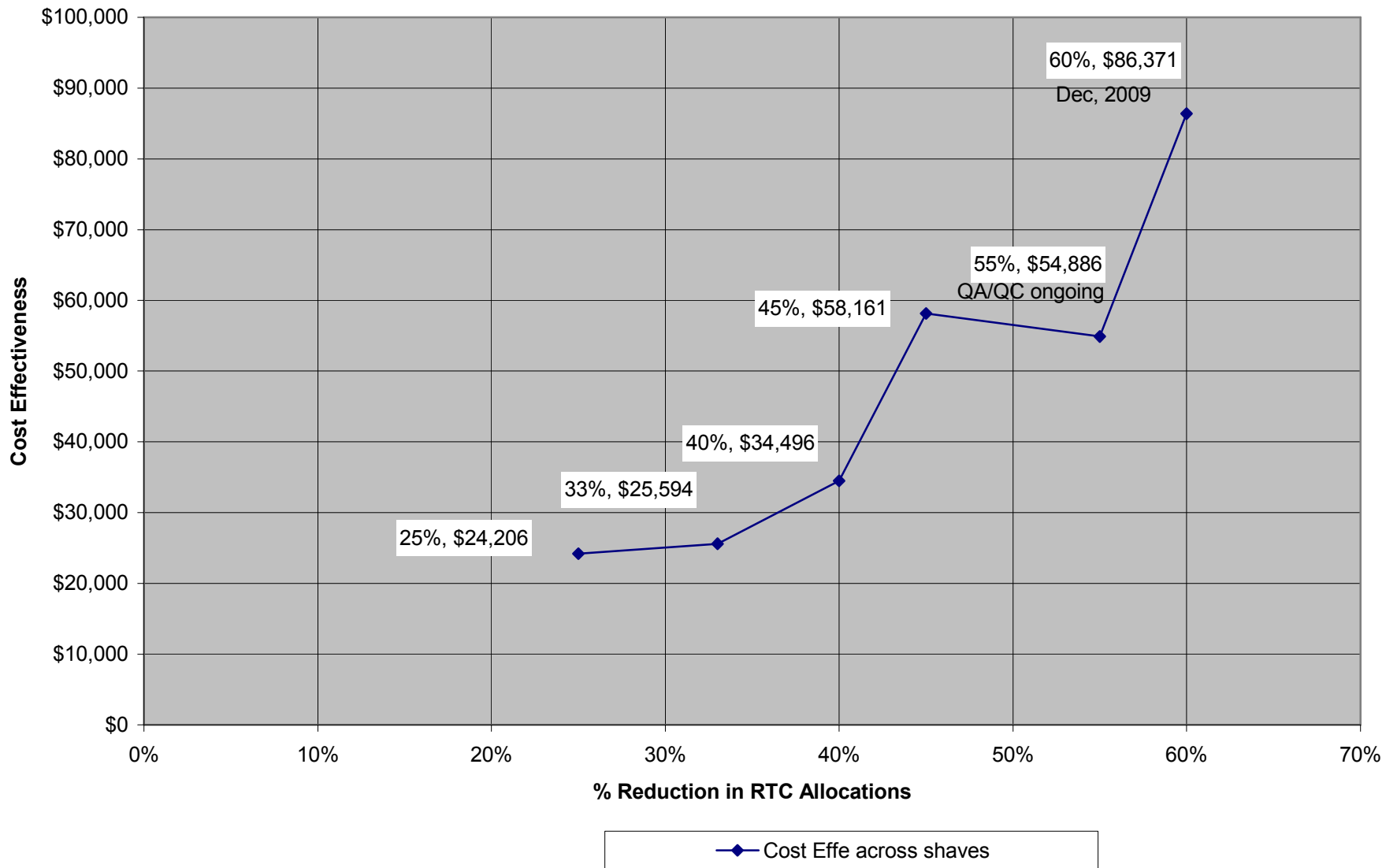
Underlying Facts

- RTC's: 1.98 TPD of RTC's (comprised of ERC's converted to RTC's and Clean Fuels Credits not subject to shave)
- Emission Reductions achieved as follows:
 - 3 TPD by end of 2014 (2007 AQMP)
 - Remainder of 1.7 TPD achieved by end of 2019
- Shave is across the board
 - Small sources and sources already at BARCT are included in shave
- Source Categories included in shave:
 - FCCU, SRU/TGU, Acid Plants, Glass Plants, Coke Calciner, Cement Plants
- Source Category excluded from shave:
 - Refinery Heaters and Boilers

WSPA Environ Cost Survey

- Initial Survey September-November, 2009
 - Final QA/QC completed – February, 2010
 - Presented to SCAQMD – April, 2010
- July 2010 Survey results updated presented to SCAQMD
- September 2010 re-survey to determine cost at SCAQMD 55% shave level and re-examine costs for other shave levels. Presenting to the District September 23, QA/QC still on-going
 - November-December, 2009:
 - 60%: \$2,857,000,000
 - July, 2010:
 - 60%: \$2,580,000,000
 - September, 2010
 - 55%: \$1,516,000,000
- Why did cost change?
 - Change is expected as companies continue to refine their cost estimates with the regulation as AQMD proposals evolve
 - Some high-cost projects associated with more aggressive reductions in RTC allocations have been eliminated – lower cost alternatives used (e.g. WGS vs. Catalyst)

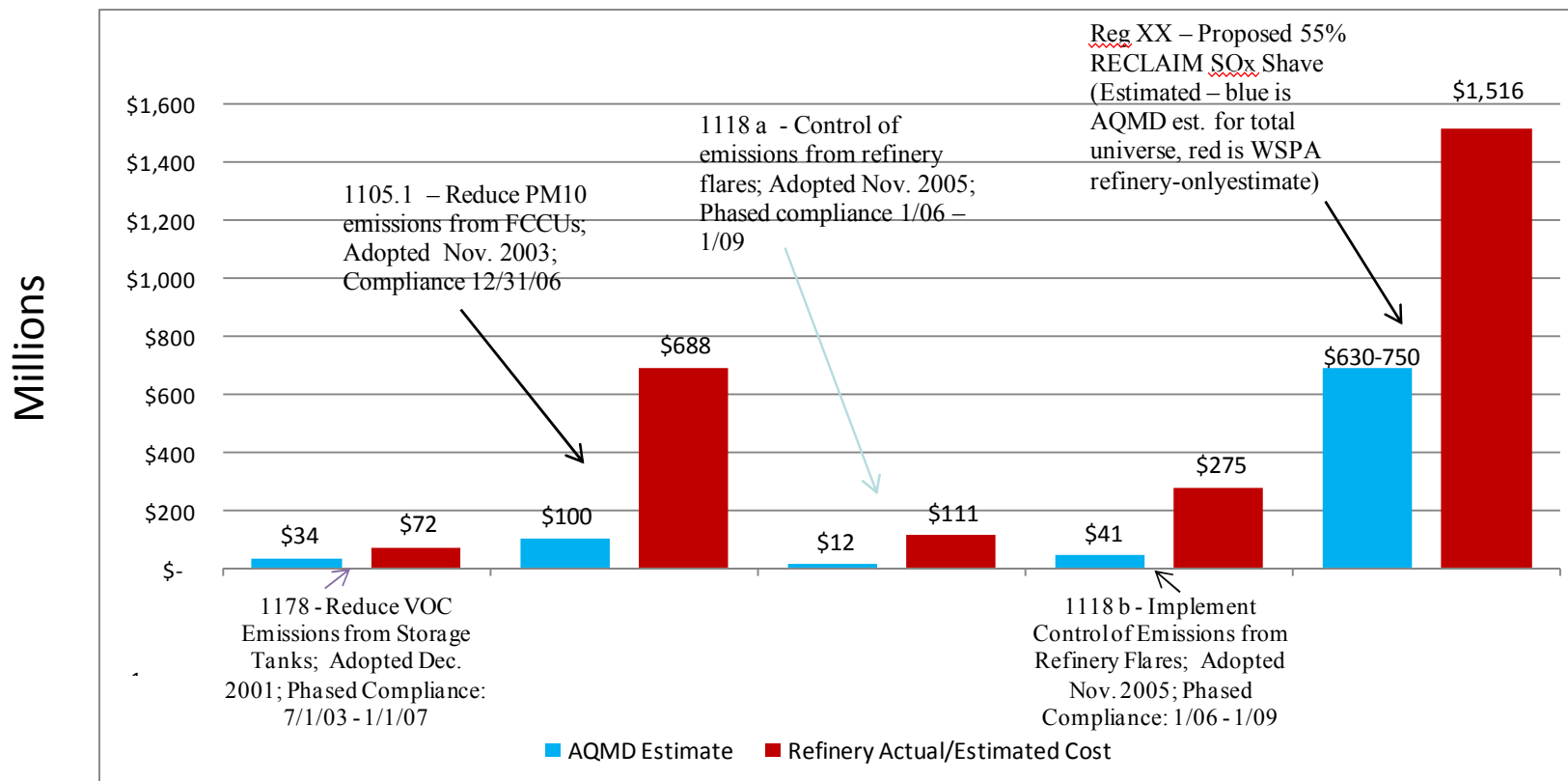
Cost Effectiveness for Refineries Across Shaves



Source: Environ

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SCAQMD estimated cost versus actual cost by rule



Norton Engineering Consultants (NEC)

SOx RECLAIM BARCT Report

- **NEC's capital and operating cost report was sent to WSPA on June 15, 2010.**
- **Report highlights errors and omissions underlying Staff Proposal key findings**
 - “As a result of the operating and capital cost differences noted in this report, we recommend AQMD recalculate SOx Control Cost Effectiveness Values with updated capital and operating costs were available. Some additional work is required to generate new capital and operating costs for allocations of alternative technologies on some units.”
 - “Therefore we believe that the cost of control technology applications at these locations has been underestimated. A reasonable contingency to be added to the project costs for these facilities would be 50% of total direct plus indirect project cost.”
 - “It appears that this single budget quote (FCCU wet gas scrubber) was used to develop costs for all five FCU scrubber installations. The Vendor D system consist only of a wet scrubber and a PTU purge water treatment plant. All other costs are excluded. NEC normally would have obtained a quote for each of the facilities or at a minimum quotes for three units to more accurately develop a size scaling factor.”
 - “In general, the NEC estimates approximately doubled the cost of the ductwork and knife gate valves included in the original FCCU control technology estimates.”
 - “NEC did not recalculate original cost effectiveness factors. However, in reviewing the consultants' operating cost work-up, we felt the annual maintenance costs were significantly underestimated.”

Several hundred million gallons of additional water annually



- Statewide drought, new era of limitations, allocations and mandatory conservation
- SB 7 Statewide 20% reduction in urban water use and requires urban water suppliers to set an interim urban water use target (December 31, 2015), and meet the overall target by December 31, 2020.
- Statewide Water Districts have taken actions such as: 1) asking for voluntary reductions; 2) imposing mandatory restrictions or declaring a local emergency; 3) imposing agricultural rationing; 4) imposing drought rates, surcharges and fines; 5) limiting new development
- Three out of six Refineries currently do not have access to recycled water
- Consideration needs to be given to all of the following issues:
 - Additional capital costs to construct and permit the infrastructure and who pays?
 - Can recycled water can be supplied within the timeframe required for compliance?
 - Water purveyor indicated a current water price (\$800 per acre-foot) and the costs for higher quality water (such as boiler feed water) is more than \$1,250 per acre-foot.
 - Availability and reliability of water delivery?
- The District's assertion that reclaimed water use can cost-effectively displace an increase in water requirements in the face of mandated reductions of 20% in potable water needs to be substantiated through an analysis - an analysis that has never been conducted.

Cumulative Rules

SCAQMD, LA/LB Port, CARB, EPA

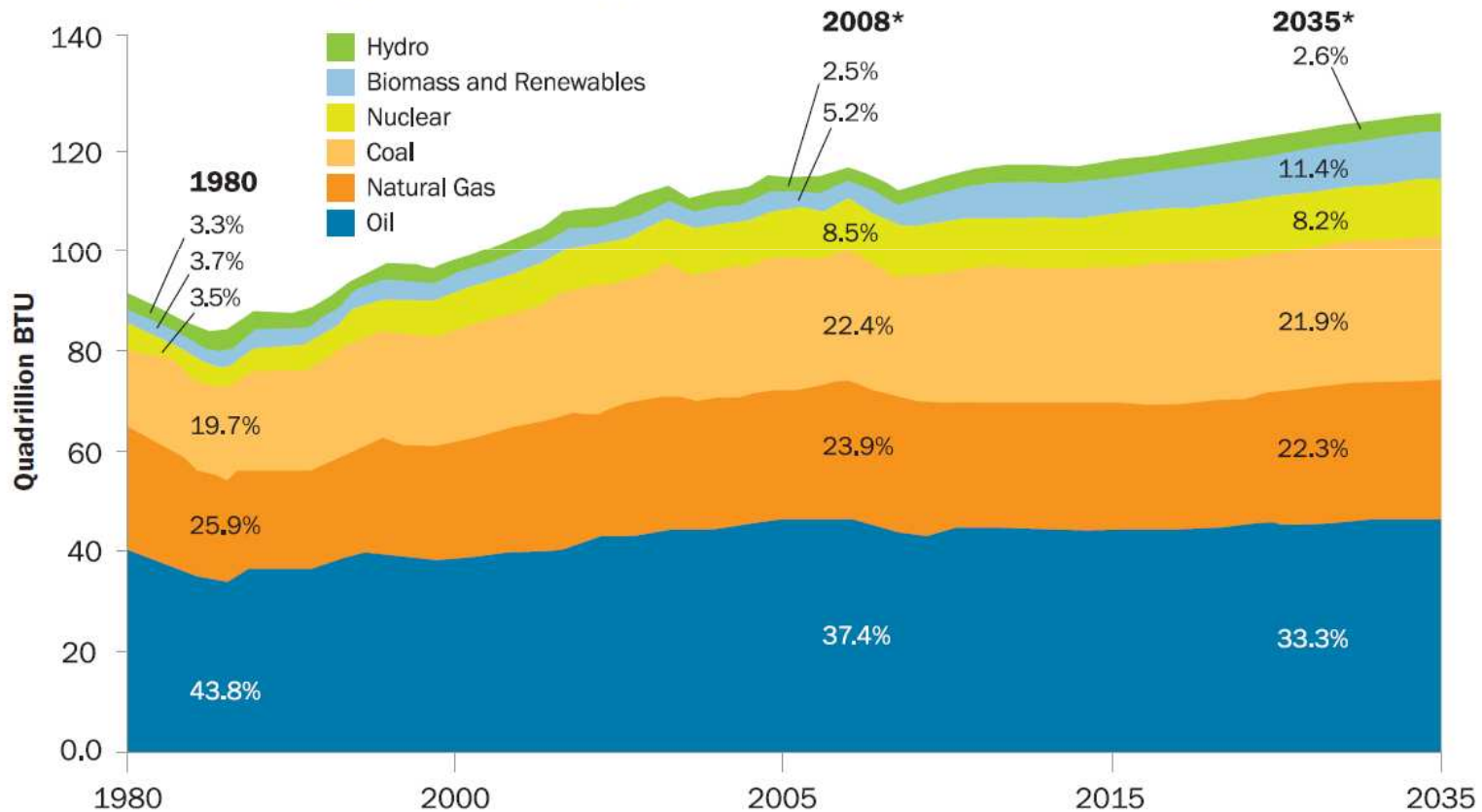
- Southern California refineries are the world's cleanest
- SCAQMD requirements since the 1980s have reduced emissions from most sources by more than 90%
- 47 recently adopted or planned near-term rules will impact directly emitted particulate matter (PM) or principal PM precursors (SO_x and NO_x)
- A quarter of the SCAQMD's 47 rules impact petroleum industry (primarily refineries) for emissions and stationary sources or producers of transportation fuels
- Federal RFS2; AB 32; LFCS; fuel reformulation; Clean Fuels Outlet regulation

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Future U.S. energy supply projections

Future U.S. Energy Demand

The U.S. will require 14 percent more energy in 2035 than in 2008.

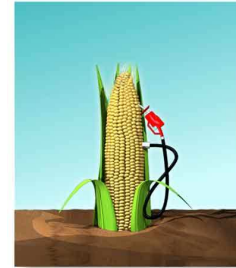


*Excludes non-biogenic municipal waste and net electricity imports. Source: EIA, AEO 2010 Tables A1 and A17.



Renewable and Alternative Energy Projects

- California refiners added close to 1 billion gallons of ethanol to gasoline last year, making California the largest ethanol consuming state in U.S.
- Shell: wind farm displaces 85,000 tons of carbon dioxide
- BP: \$500 million research to UC Berkeley
- BP: Occidental First of its kind Hydrogen energy project
- Chevron: photovoltaic facility to help power operations
- ConocoPhillips: developing hydrogen infrastructure and animal fat to renewable diesel process
- ExxonMobil: exploring new approaches to internal combustion engine technology
- Valero: implemented efficiencies that will reduce greenhouse gas emissions
- Tesoro: flare gas compressors to reduce flaring
- Occidental and AERA: cogeneration facilities produce electric power and steam
- Chevron, and Shell: members of the California Fuel Cell Partnership



Working together

- Continue working toward a constructive solution
- Support a cost-effective shave
- Include WSPA consultant's cost information in Socioeconomic Report
- Schedule follow-up meeting of Refinery Committee to review Final Program Environmental Assessment, Socioeconomic Report and other pertinent information
- Provide information to Stationary Source Committee Friday, September 24
- Offer refinery tours to Board members