



South Coast Air Quality Management District

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Emissions Cap-and-Trade Program Forum – the RECLAIM Example *(Held on April 25, 2007)*

Forum Summary and Report

Introduction

California's landmark global warming legislation, AB32, requires that the state's greenhouse gas emissions be reduced to 1990 levels by 2020. Emission trading is being considered for achieving some of the requirements of AB32.

The SCAQMD hosted this one-day forum and roundtable at which a panel of experts discussed the SCAQMD's experience with its own cap-and-trade program, the Regional Clean Air Incentives Market (RECLAIM), which has been operating since 1994. The RECLAIM program set facility-wide limits on NO_x and SO_x emissions for over 300 facilities, and allows businesses to decide what equipment, processes, and materials they will use to meet those limits. The limits decline by a specific amount each year, and businesses that reduce their emissions below their cap are allowed to sell the credits to other businesses.

The sessions consisted of presentations by a panel of experts on the RECLAIM program. Representatives from industry and environmental groups presented their perspectives. Emphasis was placed on what has or has not worked well in RECLAIM, what problems have occurred, and the lessons that can be applied to AB32. There was a roundtable discussion among the panelists, and an opportunity for members of the public to ask questions and make suggestions.

Participants of the forum included Barry Wallerstein, Elaine Chang, Carol Coy and Jill Whynot of the South Coast Air Quality Management District (SCAQMD) and the following panel members:

- 1) Jim Lents, International Sustainable Systems Research Center (ISSRC)
- 2) Bill Quinn, California Council for Environmental and Economic Balance (CCEEB)
- 3) V. John White, Center for Energy Efficiency and Renewable Technologies (CEERT)
- 4) Bob Wyman, Latham and Watkins
- 5) Mike Schieble, California Air Resources Board
- 6) Josh Margolis, Cantor Fitzgerald

Senator Byron Sher (retired) served as the program moderator.

Dr. Wallerstein opened the forum by welcoming the speakers and audience. He stressed the important role of cap-and-trade programs in environmental programs and stated that the SCAQMD staff wanted to share their experience with over a decade of RECLAIM implementation. He introduced retired Senator Byron Sher who has been a leader in environmental legislation and thanked him for agreeing to be the moderator for the forum.

Cleaning the air that we breathe...

Senator Sher mentioned that he has been involved with RECLAIM since its inception, and authored the first legislation regarding RECLAIM in response to SCAQMD setting up this program. He expressed interest in hearing the different perspectives of the speakers and public regarding RECLAIM performance against its objectives. Cap-and-trade programs have potential implications for greenhouse gas efforts and it is important to discuss the RECLAIM experience to learn from it.

Summary of Presentations

Elaine Chang the first speaker, provided an overview of the RECLAIM program. RECLAIM, the Regional Clean Air Incentives Market, is a cap-and-trade program for oxides of nitrogen (NO_x) and sulfur oxides (SO_x). It took four years to develop and was adopted in 1993. A feasibility study was the first step in the process. This program was California's first cap-and-trade air pollution program and represented a significant change from traditional command-and-control rules. The program design secured emission reductions through a cap that declined over time and was expected to reduce compliance costs by allowing facilities the flexibility to manage their emissions. Much better emissions accountability was a key element of the program. A very extensive public process was used. At a minimum, RECLAIM had to meet or exceed expectations from the 1991 Air Quality Management Plan (AQMP), which was the benchmark to assess program design. The following design criteria were used in program development:

- Equal or better enforcement;
- Equal or better emission reductions, in terms of air quality improvements;
- Equal or lower implementation costs;
- Equal or lower job impacts; and
- No adverse public health impacts.

Over 300 facilities from a wide variety of industries are in RECLAIM. Overall emission levels were set to match rules with future compliance dates and control measures included in the 1991 AQMP. Each facility had a unique rate of reduction from 1994 to 2000 and then had equal percent reductions from 2001 to 2003.

RECLAIM has credits that are valid for one year, with no banking. There are two cycles (credits are based on either a calendar or fiscal year) which gives some flexibility and smoothes prices. Facilities are required to match credits and emissions every quarter, as well as annually.

Improved monitoring, reporting, and recordkeeping were a cornerstone for the program. RECLAIM also required a transition from individual equipment permits to a facility permit. Program design included extensive program assessments.

A large percentage of emissions from permitted equipment at stationary sources in the Basin are included in the program. Initially 390 facilities were in the NO_x program. This represented six percent of the number of facilities and 65 percent of the emissions. For SO_x, initially 41 facilities were included, which is four percent of the number of facilities, and 85 percent of emissions.

Facility caps were based on a peak year to set 1994 and 2000 allocations. Setting allocations was one of the most difficult and controversial aspects of the program design. Many different methods were explored and each had advantages and disadvantages. The method selected avoided locking in recessionary impacts but resulted in allocations much higher than actual emissions in the early years of the program.

The “cross-over” point, where emissions and allocations were expected to meet was approximately the year 2000, which unfortunately coincided with the California power crisis. As other speakers will explain, SCAQMD stepped in with major rule changes and interventions to help correct problems.

SCAQMD is not active in the trading market, per se, but is the official record where all trades must be registered. SCAQMD provides information regarding trades and prices, and monitors trends. The market has evolved over the last 12 years and there are many different types of trades occurring.

In terms of lessons learned, it is very important to work with all stakeholders and seek to find common ground. Industry received increased flexibility, while the SCAQMD and environmental groups gained future emission reductions without specific rule debates. Significant resources and coordination are needed to set up such a program and also for continued implementation and monitoring.

Accurate and timely trade and emissions information is critical to ensure that reductions occur and trades are real. New penalties and requirements are needed. Training for full enforcement, permitting and compliance is needed in-house and for facility operators. Facilities need to use a long-term planning process to allow time to install controls. Significant resources are also needed for other programs – there is a need for balance.

Dr. Jim Lents was the SCAQMD Executive Officer when RECLAIM was conceived and developed. At a time of recessionary impacts and concerns that command-and-control rules were getting increasingly expensive, a market system was seen as a way to achieve environmental goals with less cost.

There is no question that a market-based approach can reduce costs. This was especially true for some aerospace facilities that would have spent millions of dollars for small emission reductions under command-and-control. Other advantages of markets are the direct limit on overall emissions and the flexibility for businesses to be creative in reducing emissions.

There can be some disadvantages of market programs, such as the opportunity for abuse. For RECLAIM, there was one criminal case brought against a broker. Dr. Lents cautioned against international trading because verification of emission reductions may not be of sufficient caliber.

Over-allocation can also be a problem that can lead to inaction by facilities. For RECLAIM, the allocation method chosen allowed a peak year to determine start and mid points, which seemed like the only fair way to allocate credits, recognize variable year to year operations, and avoid recessionary impacts. This was a conscious decision to get the market started.

In hindsight, the generous initial allocations led to inaction, and a “perfect storm” was created with the California energy crisis. Energy deregulation contributed to this situation. Power plants were sold to entities outside of California and credit prices skyrocketed due to greatly increased demand and use of old, dirty units that were never envisioned to be needed again. Dr. Lents recommended that companies be watched more closely in future market-based programs.

Historical actions related to emissions trading were described – a proposed Chattanooga emissions per acre program that ultimately did not go forward, Environmental Protection Agency’s (EPA) gasoline lead reduction, acid rain programs, fuel economy standards, and California Air Resources Board (CARB) vehicle emission reduction programs. Several options for market-based systems were evaluated by SCAQMD and are used in various programs, including emission fees, emission averaging, and cap-and-trade, such as RECLAIM.

When RECLAIM was initially conceived, the genesis was the need to balance the SCAQMD’s commitment to solve the ozone and particulate problems with recession concerns. A new way to continue the clean air program at lower cost was needed to avoid business shutdowns.

After internal staff and Board decisions, rule development committees were started in 1991. It was a give and take process that resulted in rule adoption in 1993. There was general business support and opposition by some environmental groups.

Dr. Lents briefly discussed that a similar program for VOC was also explored, but it was ultimately dropped. In 14 years of NO_x and SO_x RECLAIM implementation, there have definitely been ups and downs.

Carol Coy provided a comprehensive presentation on 14 years of RECLAIM implementation experience, and highlighted three areas: the first five years; the “cross-over” point and power crisis; and the latest developments. The details of several main issues in the first five years related to allocation disputes, rule clarifications, facility permit compilation, monitoring difficulties, emission audits, and low credit prices were discussed.

The calculation methodology was well defined and not disputed. However, many allocation adjustments were requested to maximize a facility’s credits. It was a very resource intensive process for staff, who worked with each facility. Allocation change requests were received years after the program started. In addition, technology reviews were conducted on six specific industries, which resulted in allocation changes for many facilities.

Many rule clarifications were necessary, and extensive outreach was needed to help facilities deal with the complexities of a new and evolving program. Internal guidance documents were developed to assist with consistent enforcement, and training curriculum was developed for implementation staff and facility personnel. Rule interpretations helped to provide consistency for a variety of situations encountered in the field that were not envisioned or specifically addressed in the rules.

Facility permits formed the basis for program implementation, and represented a very significant resource commitment. During the first few years of the program, difficulties with monitoring emissions arose. Precise monitoring, recordkeeping and reporting are critical for a trading program to ensure emissions and trades are real. A one-year period to install CEMS was not long enough and much use of missing data procedures was required. This was noted to use large amounts of credits in the early years and diminished over time.

Technical working groups were formed to resolve installation and operation issues with CEMS and to deal with issues for non-major sources. Facility operators needed training and assistance with calculations and there was an increased demand for source testing.

Human errors and equipment failures were frequent in the early years, but have decreased over time. However, as personnel change over, re-training is necessary. RECLAIM presented new compliance issues, such as annual emission audits that also required training of field personnel.

Generous initial allocations led to low credit prices and inaction by many facilities in the early years of the program. However, a point that is sometimes overlooked is that there were facilities with real emission reductions because emissions were now given more attention.

Lessons learned from the early years include the need to allow adequate time and resources for implementation; open dialogue helps resolve issues; fair allocations must be based on accurate emissions information; a detailed specific methodology; clear and consistent criteria, and a process for dispute resolution. Rule requirements must be clearly conveyed to internal and external parties. Expert groups should be in place to resolve technical issues. Uniform emission monitoring data allows for efficient, automated verification. Consistent and fair enforcement is essential, as is field staff to verify details. There is an on-going need for training and providing updates to staff.

The second portion of Ms. Coy's presentation highlighted problems seen in 2000 and 2001. By design, RECLAIM credits and actual emissions were expected to match by 2000. The California power crisis occurred at the same time, resulting in increased operation of in-basin uncontrolled power plants. Utilities purchased large amounts of credits in a few months and NOx credit prices skyrocketed. Many facility operators, especially power plants, had deferred capital expenditures in lieu of short-term profits. For power plants, deregulation resulted in sales of many power plants. Existing owners did not want to invest in selective catalytic reduction (SCR), and many totally uncontrolled units were placed back in service.

The roots of this situation were the minimal investment in control equipment due to low credit prices, lack of planning by many facility operators, the sudden spike in credit demand, the long lead time inherent in emission reduction projects and the fact that credit prices were not immediately registered at that time, which contributed to delayed market signals. Significant rule amendments were adopted in 2001 to isolate power plants from the trading market and to ensure adequate power was available for the state. All other RECLAIM provisions applied. Power plants were required to pay \$7.50 per pound to fund mitigation projects. Command-and-control requirements were layered on power plants on an expedited schedule.

Other amendments required enforceable compliance plans for facilities with greater than 50 tons per year NOx emissions, and set up the Air Quality Investment Program for facilities that have no additional options for controls. In addition, many pilot credit generation rules were adopted to allow additional flexibility. An amendment was added for more timely trade information and SCAQMD began posting trade information on its web site.

The 2001 amendments had several beneficial effects, including significant reductions from power plants. During the power crisis, one megawatt of energy resulted in three pounds of NOx emissions. Today, seven megawatts are generated with one pound of NOx. NOx credit prices for the current compliance year decreased significantly. Projects funded from the mitigation fee program were described.

Lessons learned for this middle portion of the RECLAIM experience are that it is necessary to closely monitor what companies are doing and ensure there are mechanisms in place to allow quick changes, as necessary. Business likes the ability to do long-term planning, but when the market swings it takes too long to respond due to the long lead time to install controls. Ms. Coy recommended that automated command-and-control requirements be in place as a backup. Alternative emission reduction sources should also be made available.

The last segment of Ms. Coy's presentation covered more recent activities with RECLAIM. RECLAIM is required by state statute to review BARCT periodically. In January 2005, an additional 22.5 percent reduction in allocations from 2007 to 2011 was adopted. Reductions will occur across-the-board, and a safety valve was added. If current year prices, based on a rolling 12-month average, exceed \$15,000 per ton, the reductions will slow down.

Relative to the RECLAIM trading credit (RTC) market, SCAQMD did not get involved directly. There has been robust trading activity, and a variety of different types of trades have occurred. Trade participants have also diversified over time, and foreign-based traders have recently become involved in trades. Current discussions are taking place regarding the role of investors in the trading market and the advantages and disadvantages that may entail. Information on investor trades and RTC prices were presented.

Lessons learned are that the trading process must be simple, with minimal turn around, as full transparency provides clear market signals. Foreign investors present jurisdictional issues. Program design should consider setting up safeguards against credit hoarding.

Slides showing the NO_x and SO_x allocations and actual emissions demonstrate that significant emission reductions have occurred. With the exception of 2000 and 2001 for the NO_x market, the program goals were met each year. Several examples of technology advancement were given, illustrating that there have been advances for emission rates for many categories of equipment.

Next steps include evaluation of SO_x emission reduction technology with future rule amendments reducing allocations accordingly. A working group will help develop recommendations on how to report credit prices from infinite blocks of trades. In summary, RECLAIM has resulted in real emission reductions, tight monitoring, recordkeeping, and reporting, and better public access to information.

Bill Quinn provided a perspective from CCEEB, a broad coalition of industry, labor, and public leaders. The 60 member organization participated extensively in the development of RECLAIM and continues to work with staff during program implementation and rule changes. Many CCEEB members will be subject to AB32. Mr. Quinn opened his presentation with a quote from John F. Kennedy regarding how crisis has an element of danger, but also an element of opportunity.

RECLAIM teaches many valuable lessons, but is not 100 percent applicable to AB32. RECLAIM is designed to meet Best Available Retrofit Control Technology (BARCT), while a market based program under AB32 will be designed to mitigate climate change. There are differences in geographical scopes, as RECLAIM is regional only. AB32 addresses a global problem and it is anticipated that this program will integrate with other regions. We should prepare to integrate world-wide. Another key difference is that RECLAIM was an alternative to an existing regulatory program, while AB32 will be starting from scratch. A major advantage of RECLAIM, and any cap-and-trade program, is that the program can achieve real, verifiable, and additional reductions at the least cost, while providing the ability to plan investments.

Additional lessons learned from RECLAIM are to avoid over-allocation of initial credits; smaller or inexperienced businesses need time to adapt; and prices must be transparent. The maximum amount of market information should be provided to help transmit price signals. Mr. Quinn stated that credits need to be property, with full rights, as a prerequisite for international trading. AB32 should anticipate continued power and energy demand. Smaller players need special design considerations, as larger players drove prices in RECLAIM during the energy crisis.

Mr. Quinn summarized RECLAIM performance. RECLAIM exemplifies how California is ahead of the curve in environmental protection, and is important as a case study. California has an opportunity to apply these lessons in designing an effective and efficient cap-and-trade system that controls greenhouse gas emissions. California is a national and international leader. Now is the time for global partnerships to combat one of the most critical problems facing life on earth.

CCEEB has developed the following general design principles for AB32. Environmental benefits should be maximized by focusing on greenhouse gas emissions reductions and protecting progress of criteria pollutant programs. The program should maximize flexibility, be simple to understand, and be easy to comply with. Administrative burdens should be minimized. AB32 should be consistent and coordinated across the state. It should avoid economic harm to prevent impeding the program and to sustain political support. Success will take regional, national, and global cooperation, and integration must be anticipated.

Individual behaviors also need to change. Command-and-control is not comprehensive, and costs vary by sector. There is also not sufficient time to regulate each sector through command-and-control rules. Market-based solutions can address more of the problem at the same time. However, we need to change the way we live by changing what we value. Cap-and-trade programs reduce costs, and can increase innovation and best practices. In Europe, this has been a success story, with environmental groups, businesses, and government supporting cap-and-trade.

Not all of the reductions needed fit into a cap-and-trade program. The state should identify the appropriate path, and not starve or disrupt a fledging market. Including a broad spectrum of sources minimizes costs and reduces leakage. Since global warming is a world-wide program, AB32 should not be strictly local. This will keep from driving businesses out of California and will address the global issue. The allocation method is critical to program success, but will be highly political. Avoiding initial shortfalls of allowances and sending clear market signals are very important. The credits need to be accessible and fungible across all sectors and all sources, regardless of geography. The program should give credit for voluntary early reduction. The Acid Rain Program provides good lessons for how to make trade information transparent and publicly available. Mr. Quinn cautioned that some industries can not pass on compliance costs, and this needs to be closely watched. In terms of design – beware of unintended consequences, but let the market drive emission reductions. Minimize regulatory intervention to the greatest extent possible to promote certainty in the market.

Mr. Quinn concluded by highlighting that RECLAIM is not 100 percent applicable to AB32. The allocation process is critical, but political. Program designers should resist regulatory intervention in response to price fluctuation. Credits should be property rights and the needs of smaller players needs to be considered. It is important to act now to respond to the global crisis, but the bottom line should be a focus on the opportunities this challenge presents.

V. John White provided reflections on where we have been and where we are going with RECLAIM. His interest is in the electrical sector, which is rapidly growing in its carbon emissions. Before RECLAIM, the electrical generators in this Basin had rules that would have required significant emission reductions and technology advancement. The 1989 AQMP culminated the vision, which Mr. White characterized as “dare to attain.” Similar to AB32, this was a big vision. RECLAIM represented a change in course, which was largely in response to the political backlash that resulted from the economic recession. SCAQMD Board members changed and a new economic theory was advanced.

The theory provided hope that changing from command-and-control rules and embracing a market-based program would reduce emissions faster, cheaper, and better. It was also the intent to have a simpler program with open data that would stimulate innovation and new technology development. This did not work out as planned. For electricity generation, there was a debate on whether NOx reductions were needed to reduce ozone. The issue was resolved, but it took four to five years to adopt a rule to reduce NOx from this sector. The rule included compromises, which in Mr. White’s opinion, started a path down a slippery slope of excuses, not results.

When RECLAIM was implemented, Southern California Edison received allocations higher than their actual emissions. Deregulation in 2001 also contributed to the problems in the power crisis. Under deregulation, little or no controls were added due to pending and eventual sales of many power plants. Regulatory intervention was the only way to deal with the power crisis market disruption.

Mr. White cautioned that markets are good to decrease costs, but there is no evidence that markets are as good in reducing emissions as command-and-control. RECLAIM resulted in delays of control equipment installation at many large sources and progress in meeting AQMP Tier II technology-forcing requirements was also hindered. These advances in technology are needed now, and RECLAIM is not a simpler system than command-and-control. Progress from command-and-control rules is direct and is enforced through permits. Command-and-control rules have a role in some sectors, especially when known controls work. Examples of where market systems can work include Zero Emission Vehicles (ZEVs), reformulated gasoline, and energy efficiency mandates. Turning to AB32, California should be a leader and develop a well designed program. The European experience is not a satisfactory model, as allocations were given away and the baseline was not calculated correctly. In addition to cap-and-trade, many other avenues are needed and a hybrid approach is recommended. In addition to market mechanisms (not just cap-and-trade), direct measures, and legislative initiations, such as one million solar roofs, are needed.

Bob Wyman concurred with Mr. White that greenhouse gas solutions need to take a hybrid approach and different thinking. This is an energy challenge, and transformation of delivery systems and consumption will be needed. Market strategies are one part of the overall strategy. Air quality plans adopted since the late 1980's have been aggressive, and have resulted in rules that have had very high costs for some individual companies. For example, aerospace had some very large costs for relatively small emission reductions. A pilot car scrapping program was initiated, fees were discussed, and bubbles were debated for sources under SCAQMD Rules 1134 and 1135. The 1990 Clean Air Act Amendments authorized marketable permit programs, which became the backdrop for RECLAIM. Market strategies were explored to make positive progress for emission reductions and to decrease costs. Roger Knoll also published a report which contributed to the beginning of RECLAIM. This was an idea whose time had come. It could help balance significant additional reductions with lower cost and technology advancement.

We have learned lessons that will help others do a better job on market programs in the future. California needs to help spawn technology transfers. Mr. Wyman described the basic elements of the RECLAIM program and mentioned that over half of the allocations were held by refineries and power plants. 120 facilities have shut down over the last 14 years, but it is difficult to assess how this would compare if command-and-control rules had been in place. Data on NOx emissions, and the amount and prices of RTCs were shown. With the exception of 2000 and 2001, there has been superior program performance. The 2007 RECLAIM annual report shows that there are generally more than 20 percent unused RTCs. This was not expected, but it appears that companies are not comfortable going up to the margin for compliance.

In 1996, there was excess capacity in the power sector. From 1996 to 2000, there was a 14 percent increase in demand, but only two percent growth in new generation capacity. There was also a decrease in out-of-basin power because of increased demand in other western states and poor hydro conditions in the Northwest. Deregulation also resulted in uncertainty regarding future dispatch of relatively high heat rate plants. Sale of power plants put them in the position of not following through on capital projects for many pending permit applications.

Mr. Wyman summarized four key things that went wrong for RECLAIM during 2000 and 2001. First, the activity levels of power generators increased 74 percent in summer 2000 compared to the previous summer. This resulted in a 38.5 percent increase in NOx emissions, despite a 20 percent decrease in emission rates. Industries with highly variable activity levels may have a more difficult time operating in a cap-and-trade program. The second factor was market imperfections – there was confusion and delay in price signals. Three large brokers were asked by the same party to find large amounts of credits which further confused the demand picture. The third element was that once prices of credits increased and credits became scarce, there was insufficient time to respond by adding controls, especially for old, inefficient peaking units. The last key item was the lack of a safety valve, as EPA had not approved area or mobile source credit offset rules and facilities were not allowed to bank previously used RTCs.

The effect of RECLAIM on the power market was then described. The net was an additional 0.5 to 2 billion dollars cost for power in the summer of 2000. This was an unacceptable impact and required SCAQMD to step in with rule changes. Lessons learned are that a larger, more varied universe of sources is recommended for cap-and-trade programs to reduce sensitivity to fluctuations in activity levels. Temporal flexibility, such as banking would provide a time cushion for the market to respond and would avoid near-term impacts of unanticipated activity level fluctuations. Banking would be essential for a greenhouse gas trading system. Inter-sector trading, like open access to mobile and area source credits, or a mitigation fee program would provide a safety valve to hedge against market shortfalls. Finally, greater transparency and more real-time information flow would have provided earlier warning for RECLAIM participants.

Mr. Wyman concluded by talking about the lost opportunity in the power plant crisis. Private entities did not solve the problem and the SCAQMD had to do what Rule 2008 (mobile source credits) envisioned. For the mobile source hotelling rule, the technology advancement opportunity did not go forward. Funding was lined up for projects, but that fell through once credit prices decreased. Some risks are needed to advance technology.

Mike Schieble provided a perspective from CARB. He commented that RECLAIM had a rough start and there was lost progress in emission reductions in the early years of the program. Problems were compounded with the energy crisis, but RECLAIM appears to be working now. It is important for AB32 not to repeat start-up problems and to get the program design right the first time.

For AB32, actions are needed to reduce greenhouse gas emissions to 1990 levels by 2020 and a further 30 percent reduction by 2050. Magic technology does not exist, and changes will be necessary in our practices and behavior, energy efficiency, and new technologies. A trading program must be fair in its treatment and not be detrimental to the economy. Lifestyle changes will be needed, which will need public support.

CARB will have about eighteen months to design a trading program and eighteen months to develop the rules. CARB hopes to transition the California program to a federal program, which is not defined yet. All parties will need to work together to address this big challenge. Solutions will have a great impact on lifestyles.

RECLAIM provides invaluable experience for a greenhouse gas market program. AB32 allows, but does not require a market program, and certain criteria need to be met. Some are fearful and do not want a market. Adverse community impacts and slow progress are concerns expressed. Mr. Schieble recommends emission decreases first and then adding a market element. Goals can be set and then options provided to decrease economic impacts. A market program for greenhouse gas can work in California, but won't be easy or risk free. There are significant benefits and costs associated with a market approach and appropriate penalties will be needed. It will be resource intensive and needs government, industry, and the public's help.

A well-designed program needs clear rules on emissions accounting. Net facility fuel use rather than per piece of equipment will be needed. There are different ways to distribute allowances, including giving allocations based on historical emissions, and auction, or performance-based methods. Tracking emissions and trades are also key elements. Enforcement issues and performance criteria will need to be addressed. Some issues that needed to be addressed for RECLAIM will not be relevant for a state greenhouse gas cap-and-trade program. These include merging existing rules and permits, the need to avoid banking, and no daily, temporal, or geographic considerations.

Panel Discussion

Senator Byron Sher (retired) moderated the panel discussion. Josh Margolis, from Cantor Fitzgerald, joined the morning speakers as one of the panelists. There were several questions posed to the panel members.

The first question was: If you were back in the early 1990's, how would you have redesigned RECLAIM?

Bob Wyman stated that mobile source credits should have been part of the program at start-up, which would have created a full package. An allocation method that was not as generous and allowing some banking would have kept pressure on facilities to reduce.

Dr. Jim Lents recommended that tighter allocations would have been better, although it was not politically viable at the time. Better tracking at the facility level was also recommended.

Josh Margolis provided the example that in the European market, facilities should have had to purchase allocations. He asked Dr. Lents if this was considered for RECLAIM. Dr. Lents replied that it was discussed, but it was decided not to go that way. Bob Wyman indicated that the Regulatory Flexibility Group would not have supported purchasing allocations due to competition outside the state.

V. John White thought that RECLAIM facilities should have had to buy credits every year. This was a bad design flaw. Allocations were given away at much higher than what was the current levels. This led to a 10 year avoidance of adding controls. Mr. Wyman countered that 10 years of doing nothing was incorrect. The environmental performance has been there, except for the power crisis. The electricity sector NOx emissions from power plants were down 20 percent in 1999 compared to 1994 levels. While the program design could have been better, there were emission decreases through combustion equipment modification and technology transfer. V. John White added that independent audits were needed.

Carol Coy said that if one looks at annual reports for RECLAIM, there are 120 less companies than at the start, but 106 new companies were added and 25 companies changed operator. Only a handful of facilities claimed that RECLAIM contributed to them ceasing operation. John Margolis commented that the annual audits have factual information that shows that reduction have occurred. The “black box” of reductions needed in the 1991 Air Quality Management Plan would have made meeting emission reduction goals very difficult. With RECLAIM, there were over allocation issues, but the program did not fail because of it. Goals were set and reached.

Bill Quinn stated a least-cost strategy for greenhouse gas should prevail, as this is a global issue. Leakage can result in more pollution elsewhere.

V. John White added that it was not good to remove existing rules and give allocations away. For climate change, all tools will be required. In hindsight, RECLAIM caused the electric generation system to fail to get renewables and more efficient energy. Senator Sher quoted the original statute which required greater or equal emission reductions at lower or equal costs and equal enforcement compared to command-and-control and future regulations.

Carol Coy stated that all of these findings were made. Enforcement became more emission-based, rather than visual inspections. Some industries added controls later than they would have under the original command-and-control rules.

Elaine Chang mentioned that RECLAIM was designed to match the 1991 Air Quality Management Plan in 2000 and 2003, not year by year. Growth projections are difficult and optimistic growth was built into allocations. If she could re-do the program, it would include a set-aside to allay concerns about market participation and allow access for emergencies.

The second question for the panel was: Looking forward, what are the three most important things to do and to avoid in developing a cap-and-trade program?

Dr. Jim Lents would not give credits property right status. A safety valve may have value, but what does that mean? If not designed well, a safety valve could undercut investments or environment improvement. A CO₂ cap-and-trade program will be easier than criteria pollutants, as tracking full use will be a consistent measurement.

Bob Wyman said that emissions and activity levels should be known; identify technology break throughs and issue credits; have a robust and meaningful program by including tax mechanisms; and in addition (or as a contingency) focus on the demand side.

Mike Schieble described the basic mandate of AB32 – to have regulations in place by 2012 and to decrease to 1990 emission levels by 2020. AB32 gives much greater responsibility to ARB. It must have rules based on technologically feasible and cost-effective controls. Consumer habits will need to be changed. AB32 calls for identification of early action measures and a comprehensive plan (like a state implementation plan) of how CARB and others will achieve the targets. CARB will need to both compel actions through rules and influence behavior with education.

V. John White would include: having large sources bear the biggest burden; having too much money from an auction could be used to lower taxes; rate and emissions levels are important; use command-and-control on every major sector first and then use a market to best effect reductions; and engage the environmental justice community. Cap-and-trade is not necessarily the answer – the question must be understood first.

The third question to the panel was: What is the most difficult challenge for establishing a cap-and-trade program?

V. John White believes that allocations were the biggest issue.

Josh Margolis said getting better air quality faster was the biggest benefit. Allocations are not the “boogy-man,” as the public pays the cost of an auction in the prices they pay for products. Cap-and-trade programs, if designed well, can result in over-compliance. The Acid Rain Program was cited as an example. The most important thing is to get the right cap and a balance to reductions. The goal is reductions, not to reward “fat cats.”

V. John White noted that if SCR rules had stayed in place, the power crisis problems would have been avoided. The mechanism was not the problem, it was the politically influenced design. The system was lubricated up front to give no pain. The end result was reached, but years of controls were missed. Very real, deep reductions are needed for climate change. A full picture is needed. It may be okay to take a risk with a market, but each section should be looked at.

Mike Schieble stated that a cap and reductions are critical. Emissions need to be reduced below where current technology can get us. For AB32, CARB may consider command-and-control rules first, followed by a market program.

Dr. Jim Lents added that RECLAIM was thought to be a rational system and SCR was expected to be added to power plants. Power plants did not do so and there was an irrational bluff about shutting off lights. The market was not allowed to work – the crisis caused a backing off by regulators. SCAQMD did not track facility actions to ensure that reasonable decisions were made. Rule changes in 2001 required compliance plans under Rule 2009.1 and made facilities plan better.

Bob Wyman said power plants in the mid-1990’s were in the process of being sold, so capital expenditures were delayed. Some applications for SCR had been submitted. Dr. Lents added that this was a failure in the system. In the future, how can this be avoided? V. John White reiterated that each sector should be looked at and the best combination of command-and-control and direct regulation should be pursued. RECLAIM showed a lack of technology progress.

Carol Coy stated that year after year, an evaluation of what controls were added was done. Information was provided each year to all facilities. In the first few years a long list of projects were done, which was all transparent information. For a future program, she would leave command-and-control on the books for large sources. The sophistication level of sources varies, and small sources don’t cope as well with costs and resource needs of a cap-and-trade program. Allocations should be reflections of a real baseline, and tough enforcement is needed. Future programs should not be complex or politically driven. The goal

of clean air should not be a reason to give profit windfalls. One should avoid overlaying command-and-control over a market.

Public Comments

Samantha Unger, from Evolution Markets, had some comments and questions for the panel members relating to barriers to entry in the market. RECLAIM has many administrative requirements that are well managed but that act as impediments to the market. For example, original signatures are required on contracts and trading forms. New companies entering have a lot of bureaucracy to contend with.

A California cap-and-trade program for greenhouse gases should incorporate credits from other states and countries, since California will set the highest bar and be an example for others to follow. It is important that there be regulatory stability to encourage meeting reductions and get investments in technology. Ms. Unger asked the panel for their ideas on barriers to entry.

Bob Wyman stated that it is important that investors have confidence in credit generation. Protocols need to be developed now and there needs to be a way to provide some certainty that those credits can be used in the future. It is important to accelerate new technology and balance risk. Barriers to the financial community should be minimized in order to have some risks taken to develop new technology and introduce more renewable energy. Senator Sher commented that AB32 includes credit for voluntary reductions before December 2006 and that, to the maximum extent feasible, protocols already in place at the California Climate Action Registry should be used.

Mike Schieble mentioned that appropriate recognition is the language in the bill, and that it is CARB's intent to recognize early reductions in the allocations. Priority should be given to companies that have reduced emissions. CARB cannot give any guarantees, but they intend to develop a program that includes this concept. The main limitation is resources for protocol development.

V. John White added that California has been reluctant to use renewable energy credits in the past. There are barriers for both buyers and sellers for renewable energy credits. He hopes that this can move forward now and that California can accelerate efforts in this area. Senator Sher had discussed this with Mr. White before. Senator Sher was the author of the bill on renewables which tried to balance the interests.

Jay Grady, from California Portland Cement, commented that their company received the Energy Star Award three years in a row, and is the only United States cement company to have gotten this award. He recommends that the state look sector by sector, as cap-and-trade programs do not work well for all industries. For cement, a performance-based best management practices approach would be preferable to a cap-and-trade program. Most of their CO₂ emissions are from the calcination of limestone to lime. Changing from coal to natural gas would not significantly lower their greenhouse gas emissions, but would result in significant increases in criteria pollutants.

Mr. Grady also expressed concern about leakage. Cement is a global market place and California plants could not deal well with having to purchase allocations due to direct global competition. The demand for cement will increase in the future and he is concerned that California plants could be run out of business.

California Portland Cement has a co-generation plant and would like to get greenhouse gas credits for that. They are also planning a wind energy system at their Mohave plant and that should also be considered. He reiterated the concern about costs and gave the example that their fees are similar now under RECLAIM even though emissions have significantly decreased.

Barbara Baird, from SCAQMD, asked Mr. Wyman to comment on whether credits should be property rights. He had mentioned that he would address that in his remarks, but did not do so. Senator Sher asked that this be covered under closing remarks.

Mohsen Nazemi, from SCAQMD, asked how CARB envisioned treating new sources under a cap-and-trade program. There is no New Source Review (NSR) program in place for greenhouse gases. Mike Schieble said that they were not likely to copy NSR directly but could either have a set aside reserved for new growth or new sources would be required to purchase allocations. Energy efficiency standards are a good analogy to Best Available Control Technology (BACT), but CARB will have to decide how to incorporate this. V. John White added that the best part of NSR was BACT, and the worst part of NSR was offsets. He stated that offsets were bogus if someone had them and not there if someone needed them. This spurred some discussion among other panelists who thought the offset program was very robust and had stringent audits by EPA.

Closing Remarks

Senator Sher asked the panel members for final thoughts.

Elaine Chang said that she had learned a lot and was looking forward to AB32 development. Cap-and-trade will have a role in reducing greenhouse gases and we need to be open and work together to design a program that will achieve the objectives.

Dr. Lents added that market mechanisms are valuable and reiterated his concern that California should keep a local focus at this stage. He also stressed the need to promote new technologies.

Carol Coy expressed appreciation to the panel members who provided valuable information. She looks forward to an on-going dialogue and offered to share SCAQMD experiences with RECLAIM.

Bill Quinn wants California to be a leader in greenhouse gas reductions, which AB32 has started. That needs to be expanded in technology development. Cap-and-trade has a role and California can serve as a model to other states, the United States, and other countries. We can lead in energy efficiency and should keep pushing in that direction. He thanked the SCAQMD for inviting him to participate.

V. John White appreciated the invitation and said that he was pleased that Mike Schieble was involved in this effort.

Bob Wyman supported the comments made that it is important to do a sector by sector analysis to ensure no unintended consequences and have equity. There should be clear signals regarding how early actions will be treated. Regarding property rights, it is important that investments have high confidence in the commodity they will be creating or program integrity will suffer. Establishing credits as a property right is not likely, but appropriate backstops and protections can be added to get the same outcome. He suggested an insurance policy for early reduction credits. If the process is known then that will help provide certainty. A hybrid approach of market mechanisms and performance standards will be the best way to effectively reduce greenhouse gases. He also thanked the SCAQMD for the invitation.

Jill Whynot thanked the speakers and audience for participating in a great day that had a lot of interesting comments.

Josh Margolis also gave his thanks. He commented that the simple things be attended to – figure out what the problem is and design elements to address the problem. All program elements should be tested to see if they meet the goal. The purpose is not trading, but emission reductions. He also cautioned that striving for perfection should be avoided. He added that the obligations and schedules for CARB are daunting and suggested that the expertise of the SCAQMD and others should be used in the design and implementation.

Senator Sher closed the meeting by expressing his gratitude for the SCAQMD and thanking the panel members. It was nice to see the outcome of legislation that was passed many years ago with RECLAIM in mind. The presentations were outstanding and he is pleased that they will be available to others. He enjoyed the lively discussions and the sharing of knowledge. He then adjourned the forum.