



**San Joaquin Valley
Air Pollution Control District**

**SAN JOAQUIN VALLEY
CARBON EXCHANGE
ISSUE PAPER**

December 10, 2008

TABLE OF CONTENTS

CHAPTER 1	INTRODUCTION	1
CHAPTER 2	GHG CAP AND TRADE VS. GHG BANKING	1
CHAPTER 3	GHG BANKING ADMINISTERED BY OTHER ENTITIES.....	3
CHAPTER 4	CHARACTERISTICS OF THE SAN JOAQUIN VALLEY CARBON EXCHANGE	5
CHAPTER 5	ADVANTAGES AND DISADVANTAGES OF THE SAN JOAQUIN VALLEY CARBON EXCHANGE	7

CHAPTER 1- INTRODUCTION

In August 2008 the District's Governing Board adopted the Climate Change Action Plan (CCAP). The CCAP recognized the importance of climate change for District residents and identified opportunities where the District could take an active role in addressing the challenges concerning climate change in the San Joaquin Valley.

In November 2008 the District held a scoping meeting on the implementation of the CCAP. Please see the associated staff report (available at http://www.valleyair.org/Programs/CCAP/CCAP_idx.htm) for background information on the climate change problem and legislative actions being taken at the local, state, and Federal level to address climate change.

The CCAP authorized the Air Pollution Control officer to develop guidance documents to assist land use agencies address GHG emissions as part of the CEQA process, develop a greenhouse gas banking program, enhance the existing emissions inventory process to include greenhouse gas emissions, and administer voluntary greenhouse gas emission reduction agreements. These items would then be brought before the Governing Board for their consideration.

This document focuses solely on various issues concerning the development and use of a District administered greenhouse gas banking system called the San Joaquin Valley Carbon Exchange (SJVCE). This paper does not address the other items called for in the CCAP.

The goals of the SJVCE are to provide a mechanism to preserve high quality greenhouse gas (GHG) emission reductions and encourage such reductions that have no or minimal collateral pollutant emission increases.

This document includes brief background information on climate change and governmental activities in California to reduce GHG emissions. The differences between a cap and trade program (part of AB32) and GHG banking will be explored. Other existing and proposed GHG banking programs will be discussed. Finally, the benefits, uses, and restrictions of the SJVCE will be discussed.

CHAPTER 2 GHG CAP AND TRADE SYSTEM VS. GHG BANKING

The following is a discussion of the proposed of the GHG cap and trade program as part of the AP32 scoping plan. This description is intended to highlight the differences between a GHG cap and trade program and GHG banking. A GHG cap and trade program is a method to reduce actual GHG emissions by operating under a declining GHG cap, whereas GHG banking is a method to preserve GHG emission reductions that are in excess of any GHG emission reduction requirement, including a cap and trade program.

GHG cap and trade program

In the AB32 scoping plan., an overall limit on greenhouse gas emissions from most of the California economy – the” capped sectors” – will be established by the cap-and-trade program.

Based on the requirements of AB 32, regulations to implement the cap-and-trade program need to be developed by January 1, 2011, with the program beginning in 2012.

The California cap-and-trade program will link with other Western Climate Initiative (WCI) partner cap and trade programs to create a regional market system for GHG allowances.

The proposed cap-and-trade measure phases in the following sectors.

Starting in the first compliance period (2012):

- Electricity generation, including imports not covered by a WCI Partner Jurisdiction
- Large industrial facilities that emit over 25,000 metric tons CO₂E per year (equivalent to one ~ 35 MMBtu/hr boiler).

Starting in the second compliance period (2015):

- Upstream treatment of industrial fuel combustion at facilities with emissions at or below 25,000 metric tons CO₂E, and all commercial and residential fuel combustion regulated where the fuel enters into commerce
- Transportation fuel combustion regulated where the fuel enters into commerce.

The cap and trade program would consist of a periodic distribution of GHG allowances by CARB. The quantity of GHG allowances distributed would decline over time. Facilities that have actual emissions less than their GHG allowance can trade (sell) their excess allowances to those entities that may have actual emissions greater than their GHG allowances.

In addition to using allowances to comply with the cap and trade program, the cap and trade program may allow a limited amount of banked GHG emission reductions that are in excess of any regulatory requirement to be used to meet the GHG cap. Such GHG emission reductions must be quantified using CARB approved protocols.

These GHG emission reductions may be allowed to come from areas inside and outside of California. The final details on the use of banked GHG emission reductions for compliance with AB32 will be specified in the AB32 cap and trade program rulemaking process.

GHG banking

GHG banking will allow facilities to banked actual GHG emission reductions that are additional, i.e. in excess of any regulatory requirement. Such regulatory requirements include any requirements of AB32 or any other requirement that results in a reduction of GHG emissions (even if the requirement did not target GHGs). In other words, if a facility is required to make modifications due to any regulatory requirement, the resulting GHG emission reductions would not qualify for banking

On the other hand, if a facility reduces GHG emissions from an operation that is not subject to an AB32 requirement or any other regulatory requirement, that emission reduction would qualify for emission reduction banking. Details of such an emission reduction banking program are discussed further below.

CHAPTER 3 GHG BANKING PROGRAMS ADMINISTERED BY OTHER ENTITIES

There are currently several voluntary GHG banking systems in existence in the U.S. as discussed below.

Chicago Climate Exchange (CCX) members make a commitment, i.e. a voluntary cap and trade program, to reduce greenhouse gases. The members are given GHG “allocations” with a declining balance. Members can sell excess allocations or purchase needed allocations as part of this cap-and-trade program.

The CCX also allows the banking and trading of GHG emission reduction projects (separate from the cap and trade program). These emission reductions are also traded on the CCX.

The CCX has developed standardized rules, i.e. protocols, that allow GHG banking for the following types of projects:

- Agricultural methane
- coal mine methane
- landfill methane
- agricultural soil carbon
- rangeland soil carbon management
- forestry
- renewable energy
- ozone depleting substance destruction

Such emission reductions can be generated world-wide. Due to the global nature of the emission reductions verification of these emission reduction can be difficult.

The New York Climate Exchange and the Northeast Climate Exchange are newly formed entities that will provide for the trading of GHG allowances as part of the Regional Greenhouse Gas Initiative (RGGI) starting in 2009. RGGI is an agreement by ten Northeastern and Mid-Atlantic States to agree to cap emissions from fossil-fuel fired electric generation plants larger than 25 MW at current levels for 2009. A cap-and-trade program is in place with a 10 percent decrease in greenhouse gas emissions by 2018.

The RGGI also has provisions, similar to those in California's AB32, that allow for emission reductions outside of the capped sector to be used to meet mandatory emission caps. RGGI has established "prescriptive standards", i.e. protocols, that allow for the banking of specific types of emission reduction projects, including:

- Landfill methane capture and destruction
- Reduction in emissions of sulfur hexafluoride (SF6) in the electric power sector
- Sequestration of carbon due to forestation;
- Reduction or avoidance of CO2 emissions from natural gas, oil, or propane end-use combustion due to end-use energy efficiency in the building sector
- Avoided methane emissions from agricultural manure management operations

The Climate Action Reserve (CAR), a separate program of the California Climate Action Registry, allows members to bank GHG emission reductions that occur in the U.S. The CAR is solely a banking system; there is no cap and trade component. The Climate Action Reserve is not party to GHG emission reduction transactions. CAR has developed emission reduction project protocols that allow for the banking of specific types of emission reduction projects, including:

- forestry sector project protocol
- urban forestry project protocol
- manure management project protocol.

The Western Climate Initiative (WCI) is a collaboration of seven Western U.S. states (including California) and four Canadian provinces created to identify, evaluate, and implement collective and cooperative ways to reduce greenhouse gases in the region, focusing on a market-based cap-and-trade system.

The partner states and provinces will commit to lowering GHG emissions from the largest GHG sources down to 15% below 2005 levels by 2020 through the use of a cap and trade program. Each state and province will be allocated a certain amount of GHG allowances. The states and provinces then distribute those allowances in a manner similar to that proposed to be used in AB32. Allowances can be traded across states and provinces.

Similar to AB32, in addition to using allowances to comply with the cap and trade program, the WCI will allow a limited amount of banked GHG emission reductions to meet the GHG cap. The WCI offset program is still in its infancy, but it is expected to have the same requirements and restrictions on the use of offsets as a means to comply with the emissions cap as specified in AB32.

The South Coast Air Quality Management District (SCAQMD) is proposing (for adoption in December 2008) a new GHG banking program called the "SoCal Climate Solutions Exchange". The GHG banking program would allow the banking of voluntary GHG emission reductions that occur within the SCAQMD. The SCAQMD would only define protocols (approved by SCAQMD and CARB) to quantify the emission reductions. Potential uses of banked GHG emission reductions include providing GHG mitigation for CEQA, retirement to reduce an entity's carbon footprint, and possibly for compliance with AB32.

CHAPTER 4 CHARACTERISTICS OF THE SAN JOAQUIN VALLEY CARBON EXCHANGE

Criteria for GHG banking:

To qualify for banking GHG emission reductions must be real, enforceable, quantifiable, and additional (i.e. would not happen in the absence of the GHG emission reduction project) and surplus of any emission reduction requirement, including emission reductions that target GHG emission reductions and other requirements in which GHG emission reductions are a collateral benefit.

The program should not allow the banking of GHG emission reductions that are required by AB 32. The proposed AB32 scoping plan includes a cap and trade program for electricity generation and industrial facilities with GHG emissions greater than 25,000 metric tons per year starting in 2012 and for fuel requirements for facilities with GHG emissions less than 25,000 metric tons per year starting in 2015, and various early action measures to reduce GHG emissions from a variety of industrial and commercial sources. However, the banking system may allow for the banking of temporary or emission reductions that will be eventually required by AB32 requirements. In such a case, when the AB32 emission reduction requirement is in force, the emission reduction would no longer be valid.

The program should not allow the banking of GHG emission reductions that occur as a collateral benefit making a required criteria pollutant emission reduction. For example, if a facility replaces an IC engine with an electric motor as a means to comply with a District rule that targeted NOx emissions, any resulting GHG emission reduction would not qualify for banking.

The quantification methods for GHG emission reductions would follow pre-approved emission reduction project protocols, i.e. methods to quantify GHG emission reductions. These protocols would have to be approved by the District and CARB.

Using CARB approved protocols would ensure the validity of the banked emissions reductions as a partial means to comply with AB32.

CARB has developed three emission reduction project protocols to date:

- forestry sector project protocol
- urban forestry project protocol
- manure management project protocol.

Unlike the GHG emission reduction banking programs described above, banked GHG emission reductions in California would have to be in excess of what is required by AB32.

Typical GHG emission reduction projects

Under currently approved protocols, GHG emission reductions may be banked to forestry preservation projects, urban forestry projects, and agricultural manure management projects.

While the current list of approved protocols is rather short, new protocols could be developed to address any number of GHG emission reduction project. However, to qualify for banking, any GHG emission reduction project would have to be in excess of any regulatory requirement.

GHG emission reduction projects that may qualify for banking under future protocols may include, but are not limited to:

- reducing CO₂ emissions from combustion equipment due to equipment efficiency upgrades
- installing landfill gas collection and control to reduce methane emissions
- reducing flaring of process gasses from industrial facilities
- switching fuels from a high GHG fuel to a lower GHG fuel

Some GHG emission reduction projects could result in a significant increase in criteria or toxic air pollutants, e.g. agricultural manure management by methane collection and incineration. Because of the District's severe air pollution problems, minimization or avoidance of criteria pollutant emissions will take precedence over GHG emission reductions. As such, The District may disallow or may highly discount GHG emission reductions projects that result in increased criteria or toxic air pollutants.

Compatibility with Other GHG Banking Programs

The SJVCE would be designed to be compatible, to the extent possible, with other established and pending GHG banking systems such as the following:

- Chicago Climate Exchange

- Climate Action Reserve (part of California Climate Action Registry)
- Pending Regional Greenhouse Gas Initiative (10 Northeast and Mid-Atlantic states) offset program
- Pending Western Climate Exchange banking program
- SCAQMD GHG banking program “SoCal Climate Solutions Exchange”

Please note that GHG banking programs outside of California generally allow the banking of a larger variety of GHG emission reductions that would be allowed in California. Due to the requirements of AB32 and the draft scoping plan, some emission reductions that can be banked in other states may not be “additional” emission reductions in California and therefore would not qualify for banking.

Structure of a District GHG Emission Reduction Banking System

A new District regulation would likely be developed to allow for the banking of GHG emission reductions. Such a regulation would specify the criteria that GHG emission reductions must meet to be eligible for banking, including detailed references to requirements of AB32 to determine if such emission reductions are additional.

Such a rule would also address the generation of temporary GHG emission reductions.

The regulation would list the specific approved project protocols that must be used in quantifying GHG emission reductions. Such protocols would require District and CARB approval prior to use.

CHAPTER 5 ADVANTAGES AND DISADVANTAGES OF THE SAN JOAQUIN VALLEY CARBON EXCHANGE

If developed, the SJVCE could provide benefits to businesses in the San Joaquin Valley. These benefits, as well as some drawbacks of a SJVCE are discussed in detail below.

Advantages of the development of the San Joaquin Valley Carbon Exchange

The SJVCE will be a purely voluntary program allowing Valley businesses and entities to obtain carbon credits for voluntary projects that generate early reductions in GHG emissions in advance of regulatory requirements.

By providing a mechanism to bank GHG emission reductions with the District, the SJVCE can promote early local reductions of GHGs (and collateral criteria and toxic air pollutant emissions) in the San Joaquin Valley. The associated emission reductions of criteria and toxic air pollutant emissions can help mitigate the disparate impact air pollution can have on environmental justice areas and can aid in bringing the District into attainment with the ambient air quality standards.

Retirement of banked GHG emission reductions may be used as mitigation for GHG emissions from a project as part of the CEQA process. The retirement of locally occurring GHG emission reductions that were banked in a District administered GHG banking program may increase their credibility as mitigation in the CEQA process.

Additionally, banked GHG emission reductions may be retired by an individual or an organization as a means to reduce that entities "carbon footprint".

With some GHG banking programs there is uncertainty involved with many of the emission reduction projects. It is sometimes difficult to judge whether the offsets banked in these other programs are indeed real.

The District's extensive experience (over 20 years) in banking criteria pollutant emission reductions can readily be extended to banking GHG emission reductions. This experience can provide a high level certainty that the GHG emission reductions are valid. Additionally, the proximity of District staff to such emission reduction projects will allow easy verification of the emission reductions.

Pending development of the AB32 cap and trade program by CARB, the retirement of banked GHG emission reductions may be able to be used to a limited degree to comply with the AB32 cap and trade program. Details on the use of banked GHG emission reductions for AB32 compliance will be addressed in CARB rulemaking process.

Disadvantages to the development of the San Joaquin Valley Carbon Exchange

Other existing GHG banking systems are currently in place that allow facilities in the San Joaquin Valley to bank GHG emission reductions. As such, there may not be a need for a District administered GHG banking program.

While some of the existing GHG banking programs may allow the banking of questionable GHG emission reductions, the Climate Action Reserve appears to have the greatest number of safeguards to ensure that GHG emission reductions must be real, additional, etc in order to qualify for banking.

Emission reductions banked in the Climate Action Reserve must be quantified using CARB approved protocols. The use of such protocols would generally ensure that the emission reductions are real.

The Climate Action Reserve has been in existence since 2006. To date the Climate Action Reserve has received applications for 19 projects and two have been issued. This relatively low amount of activity may be indicative of the demand for a GHG banking program in general. There may not be sufficient demand for a District administered GHG banking program.

Administration of a GHG banking program may tax District resources, especially given all of the current mandates of the District, especially Title V permitting and agricultural permitting for small sources due to the upcoming change to the major source threshold, permitting activities related to compliance with new rules, etc.