

STAFF DRAFT

Evaluating Allowance Tracking Systems for a Carbon Cap-and-Trade Program

February 8, 2006

Summary

In the absence of an effective federal policy to mitigate climate change and reduce United States' greenhouse gas emissions, individual states (e.g. Oregon and California), and groups of states in the Northeast are currently in the process of adopting or proposing carbon dioxide cap-and-trade programs to do so. A fundamental aspect of any carbon cap is the distribution of carbon credits or allowances, i.e. the right to emit, in most cases, one tonne (metric ton) of CO₂. Critically important to the success of any allowance regime is tracking the ownership of the CO₂ allowances. In addition in Oregon, trading of allowances among regulated entities will likely be allowed. The cap-and-trade system would need a robust mechanism to ensure that allowance trading maintained the integrity of the allowance system.

This paper evaluates the different allowance tracking systems currently developed or being considered. It is envisioned that the state system would only track the ownership and retirement of allowances. Actual trading would occur outside the tracking system. A decision about which system to use would not need to be made until the cap-and-trade system is designed and enacted. At that time, specifications would be developed and companies would be invited to bid to provide software and perhaps management support. Establishing methods to calculate annual emissions for load-serving entities is addressed in a separate paper.

Background

In 2005, Governor Ted Kulongoski established the Oregon Carbon Allocation Task Force to examine the feasibility of, and develop a design for, a load-based carbon allowance standard, or cap-and-trade system, for Oregon. The Task Force will make its recommendations to the Governor in the Fall of 2006. As the Oregon Task Force designs a cap-and-trade system, it must determine how to track the holdings, transfers, retirements, and expirations of carbon allowances.

There are four database systems (registries) that could be used for these purposes and one that might be developed:

- 1) The Environmental Protection Agency's Emissions and Allocations Tracking System (EATS);
- 2) The United Kingdom's Greenhouse Gas Registries for Emissions Trading Arrangements (GRETA), which is used to comply with the European Union's Emissions Trading Scheme (EU ETS);

STAFF DRAFT

- 3) France's Greenhouse Gas Effect Electronic Registry System (SERINGAS), which is also used to comply with the EU ETS; and,
- 4) The Chicago Climate Exchange (CCX).

In addition, the California Climate Action Registry (CCAR) is considering developing an allowance tracking system to complement its voluntary emissions registry.

For the moment, the Task Force is considering using the emissions data that provide the retail labels that are calculated in accordance with the Oregon Public Utility Commission's fuel and emissions disclosure rule (OAR 860-038-0300) for investor-owned utilities. The individual consumer-owned utilities would be allocated pro-rata shares of Bonneville Power Administration (BPA) resources for firm BPA power deliveries. This paper assumes those annual reports will be available to the entity that is tracking the allowances and compliance with the allocation standard.

Context and Importance of the Issue

Although CO₂ cap-and-trade programs in the US are only being immediately pursued at the state and regional level, it is possible that a future federal CO₂ trading program will be created. Congress is considering legislation to establish a federal system, but passage of such legislation is not likely to occur soon. Should one be created, existing state and regional allowance tracking systems could be incorporated into the federal program's database if these entities were using similar software prior to the creation of the federal program. Thus, adopting the same or similar software programs as other states and regions has practical considerations in addition to potential saving on the costs of licensing, customizing, and operating an allowance tracking program.

Tracking Options

A. EATS

The EATS software was developed by the consulting firm Perrin Quarles Associates (PQA) under contract to the U.S. Environmental Protection Agency (EPA). It is a comprehensive web-based software application intended to support a variety of agencies and countries seeking to adopt a cap-and-trade program. It is public domain software.

EATS manages the following elements:

- Program rules and timelines;
- Inventory of emission sources;
- Emissions;
- Allowance accounts and representatives;
- Allowances; and
- Compliance assessment.

STAFF DRAFT

Overview of Cap-and Trade Program Using EATS

Before the cap-and-trade compliance period begins, administrative staff for EATS would create an electronic account for each entity within the tracking program. The administration staff then would store electronically, via the EATS software, the allowances that each entity either purchased in an auction(s) and/or received via allocation by a governmental entity. During the trading period, the EATS software would monitor and keep track of holdings, transfers, retirements of allowances, etc. Emissions data could be also imported at any time into emissions accounts. Following the compliance period (e.g. at the end of three years), the administrative staff would use EATS to determine if each entity is in compliance with the emissions cap. This would involve using the software to determine if sufficient allowances existed in each entity's account to cover its emissions for the compliance period.

EATS software is available for free from EPA and was developed to be flexible and adaptable. The cost for customizing the program to the specifics of an Oregon cap-and-trade program has been estimated to be between \$50,000 and \$100,000.

Other Uses of EATS for Carbon Allowance Tracking

There is a precedent for using EATS for greenhouse gas allowance tracking. In December 2005, seven Northeastern and Mid-Atlantic States (Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, and Vermont) agreed to implement the Regional Greenhouse Gas Initiative (RGGI). RGGI is a collaborative effort of nine states to develop a regional cap-and-trade program, initially to limit CO₂ emissions from power plants. RGGI has decided to use the EATS software program to track both emissions and allowances for its future trading program. This decision, however, has not yet been formalized.

B. GRETA

Adopted in March 2003, the European Union Emissions Trading Scheme (EU ETS) is designed to help member states meet their Kyoto Protocol commitment (a 5.2 percent greenhouse gas emissions reduction below 1990 levels) over the five-year period 2008-2012. It was launched in January 2005 as a multi-country, multi-sector greenhouse gas emissions trading scheme.

In the scheme, each entity (e.g. individual companies, market traders, etc.) has an allowance account that is registered in a member state's national registry. Each member state has a National Allocation Plan that details the number of allowances that are freely distributed by the state to each entity. The distributed allowances are then recorded in each entity's account. The national registries are linked together in an EU-wide system (administered by the EU Commission) that also monitors and checks all allowance transfers between account holders.

STAFF DRAFT

The United Kingdom has developed a national allowance tracking registry that could possibly be adopted by the State of Oregon. Having previously successfully developed a registry for its domestic voluntary Emissions Trading Scheme, the UK created the Greenhouse Gas Registries for Emissions Trading Arrangements (GRETA) to be used for the EU ETS. The cost to license the software program is about \$130,000. It has so far been licensed to 16 other countries. If used by Oregon, modification to the software platform would be required, but those costs haven't been estimated.

C. SERINGAS

France has also created a national registry designed to comply with the EU ETS. The Greenhouse Gas Effect Electronic Registry System (SERINGAS) is a multilingual program that is currently licensed to several countries in Europe and includes all the necessary functions that an Oregon cap-and-trade program would need. The cost to license the software is approximately \$120,000. Similar to GRETA, modification to the SERINGAS software platform would be required, but those costs haven't been estimated.

D. Chicago Climate Exchange Registry

Within the United States, the Chicago Climate Exchange (CCX) is a voluntary, legally binding pilot program for reducing greenhouse gas emissions. Members of the Exchange with direct emissions agree to reduce emissions one percent per year relative to their baseline. Rather than registering and trading carbon allowances, the CCX uses Carbon Financial Instruments (CFIs) as the tradable commodity. The internet-accessible CCX Registry holds emissions data and serves as the recording and transfer mechanism for CFIs. In the event that an Oregon cap-and-trade program is created, it might be possible to license the CCX software and adapt it to Oregon's requirements. For example, Oregon would not need the direct trading function that is integral to the CCX software.

E. California Climate Action Registry

The California Climate Action Registry (CCAR) was created as a non-profit entity by the California Legislature to store emissions data voluntarily supplied by emitters. It was launched in October 2003 and as of January 2006 had 42 participants going through the certification process for 2005 emissions data. CCAR registers emission inventories through a database software called the Climate Action Registry Reporting Online Tool (CARROT). CARROT, however, is not an emissions allowance tracking tool.

The possibility of a regional CO₂ cap-and-trade program involving Oregon and California raises the question of whether it would make sense to develop a tracking tool that complements the data storage capability of CARROT. This option has been reviewed and presents two problems. First, the manner in which utilities report emissions data to CCAR does not fit the needs of a load-based cap-and-trade system as anticipated in Oregon; therefore, it would have to be revised. Secondly, the CARROT software does not include an allowance tracking program. Thus, CCAR would have to create the additional tracking capability.

STAFF DRAFT

The California Public Utilities Commission (CPUC), which currently has a draft order to establish a load-based cap on greenhouse gas emissions, expects to coordinate with CCAR and with Governor Schwarzenegger's Climate Action Team to develop a plan for an emissions and allowance system. The CPUC recognizes that the CCAR's reporting protocols would need to be modified to meet the needs of a load-based cap. It should be noted that the CPUC's draft plan would not initially allow trading of allowances.

Other regional entities, nonetheless, have decided not to use CCAR for their voluntary emissions registries. The Northeastern states have committed to a regional Climate Change Action Plan intended to limit greenhouse gas emissions. They have created, as of October 2003, the Regional Greenhouse Gas Registry (RGGR) to complement its greenhouse gas reduction goals. CCAR offered to sell RGGR its CARROT software program for emissions data storage, but RGGR decided instead to use and modify the EATS software program. This decision was made after analyzing costs (e.g. CARROT vs. EATS) and practicality, i.e. EATS could be used in conjunction with RGGI because it includes emissions *and* allowance tracking platforms. Consequently, RGGI later decided, as mentioned above, to adopt the EATS software.

Regarding cost, making modifications to the existing EATS program would likely be less expensive for Oregon than helping to pay for the creation of an additional software function of CARROT.

Administration of the Program

Who will administer the program is an issue. In this regard, the State of Oregon has several options. It could designate:

- 1) a state agency (e.g. Oregon Department of Energy or a new state entity)
 - Pros: unhindered State oversight of the program
 - Cons: limits on staffing, limited in-house software programming expertise; however, the state agency could contract for services to overcome such obstacles if necessary.
- 2) a newly created non-profit organization within Oregon
 - Pros: funds would not be part of state budget
 - Cons: potential problem of third-party verification and hindrance of State oversight and State revision of rules over time
- 3) RGGI's "Regional Organization," which will be responsible for administering their trading program and software¹

¹ According to the RGGI Memorandum of Understanding, dated 12/20/05, the Regional Organization will be incorporated in New York to "Act on behalf of each of the Signatory States in developing, implementing and maintaining the system to receive and store reported emissions data from sources and track allowance accounts for the Program."

STAFF DRAFT

- Pros: sharing the costs of administration; possible linkage with RGGI trading regime
- Cons: political perceptions; lack of oversight

Joanne Morin of the New Hampshire Department of Environmental Services has stated that RGGI's Regional Organization will have an administrative body of two or three people and will cost about \$500,000/year to operate for the seven states. Administration costs, therefore, for an Oregon trading program would likely be much less per year.² If the cap-and-trade program includes an auction for some or all of the allowances, revenues generated from the allowance auctions could be used to cover administrative costs. With or without an auction, the State could charge recipients an administrative fee, e/g/ \$0.01 or \$0.02 per allowance distributed, to cover administrative costs.

Regardless of which entity administers the tracking system, the State must have access to regulated entities' allowance and emissions data and other compliance information in order to ensure the proper functioning and integrity of the cap-and-trade program. The State must also have authority to issue rules regarding implementation of the statute so that the system can retain flexibility over time. The State cannot delegate such authority to an independent entity. In the event of a regional cap-and-trade program, inter-state administrative issues would have to be resolved.

Conclusion

This research has demonstrated that the costs for setting up and administering a cap-and-trade system are not likely to be large. In addition, there are a number of parties who would be in a position to compete to offer the software and services the state might need. The decision on which software to choose should be left to the implementation period following legislative approval of the cap-and-trade system.

For now, in terms of a software system capable of tracking CO₂ allowances for an Oregon cap-and-trade program, it appears that EPA's EATS software would be the least costly (it can be obtained for free from the Agency). Furthermore, the cost to modify the program would be small.

Additionally, RGGI is planning on adopting the EATS software to track its carbon allowances; thus, it might prove beneficial and practical to adopt the same tracking software as other states/regions. The EATS program is also easily adaptable to both load-based and generation-based cap-and-trade programs. Accordingly, EATS could provide the necessary software platform for allowance tracking in the event a federal CO₂ trading program is created. EATS could also be adapted to EU and UN qualifications in the event that the US joined an international trading program.

² There is a discrepancy in administrative costs because the Regional Organization will have other responsibilities in addition to administering the software program.

STAFF DRAFT

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