

Where Are We Headed?

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Everyone knows that the EU ETS is a pioneering experiment in public policy, much in the way that the US SO₂ Trading System was a decade ago. What is less widely publicized is that one of the most pioneering aspects of the EU ETS is its MRV methodology. It is distinctly different from that used in the US SO₂ program and, with slight modification, it will be more generally applicable across emissions sources and countries than the SO₂ precedent. Moreover, the EU ETS approach has distinct analogies with other systems that underlie world trade in securities and commodities. And, this is the direction in which we should be headed if there is to be a global GHG trading system.

Virtually all the emissions (although only a third of the sources) in the US SO₂ program are measured and reported by means of continuous emissions monitors that effectively measure the mass of SO₂ emitted from a smokestack. This might be seen as the gold standard of monitoring, but it is costly and it is infeasible for all but large sources as evidenced by the two-thirds of sources in the SO₂ program that use alternative reporting methods. This method works because the vast bulk of the SO₂ emissions come from large sources. This approach will not work for CO₂ where the large sources constitute a much smaller percentage of the total.

The EU ETS has adopted a different method of monitoring and reporting in which installations self-report emissions based on the carbon content of fuel combusted and various process emissions calculations, all of which is subject to certification by external verifiers. This method is more easily extended and generalized, but it too would be costly, as is being experienced by small installations in the EU ETS. Imagine the situation for households. Excepting gasoline, household energy consumption is already measured in monthly bills and emission factors could be assigned and households made to report just as is done for income and taxes. This is perhaps an infelicitous analogy but it is apt nonetheless. A moment's thought should convince anyone that this possibility would be costly and likely provoke a political outcry that would doom the whole thing.

All is not lost, however, because a carbon content method of monitoring and reporting can be applied at number of points along the fuel chain. Generally speaking, the solution to this problem of appropriate method and wrong application is to place the reporting requirement at the point in the fuel or emissions chain where the transaction costs are least. For CO₂ emissions, this point would likely be upstream with import terminals, refineries, coal mines, and gas pipeline hubs. In keeping with the tax analogy, think of it as the VAT-alternative. Consumers have no idea of the amount of the tax they pay, but they pay it just the same. This is in fact proposed in two of the leading cap-and-trade

proposals in the US, and I am convinced that the EU ETS will ultimately end up monitoring and reporting upstream, especially if the EU ETS becomes more comprehensive in its sector coverage.

If this guess about the least transaction cost point of regulatory obligation is correct, then we would be headed towards a system in which wholesale fuel providers monitor and report carbon content. This is an extremely encouraging prospect for at least three reasons. In most cases, the carbon is already being measured. It's also being measured for fuel supplies coming from regions of the world in which the general institutional capability is otherwise very weak. Finally, it's all done among private parties with very little reliance upon the government.

I can speak most confidently about coal. Coal is a commodity, but it is not uniform in quality and simply sold by the ton. Measurement by the weight or volume alone could include a lot of impurities, such as rock, that would not combust well. Accordingly, every coal shipment in the US, and I am sure in all but the most primitive regions of the globe, is accompanied by an elaborate sampling and testing procedure that ensures that the ton delivered is what it purports to be. Among the attributes invariably specified in a coal contract is carbon, along with SO₂, ash, moisture and some other more exotic attributes that can be important in combustion. In fact, this tight quality control applies to all fuels and for that matter nearly all commodities. Very few things are sold on the basis of visual inspection alone, especially when the sale involves any bulk.

The second encouraging aspect is that a large amount of this quality-assured commodity comes from some of the most unpromising regions of the world for which most of us have little confidence in their institutional integrity. Although we would never think of buying securities or medicines from these countries, we have no problem purchasing oil, coal or natural gas, as the case may be, because these shipments do meet the quality requirements we demand. Stated differently, societies which otherwise seem unable to meet international standards in most domains do so when it comes to certain exports that return needed cash.

Finally, all of this measuring, testing and reporting occurs largely out-of-sight, without heavy government involvement, and internationally, that is among parties who are not subject to the same legal regime. In the US, for instance, institutions developed largely under the auspices of the American Society for Testing and Measurement (now known in this global age as ASTM International). This institution got started more than a century ago as the result of defective rails. Trains were derailed with great damages when weak or defective rails failed and railroads were not happy. Things could have been fought out in the courts but railroads and steel suppliers quickly saw that it would be better to set up an institution that would test and certify that the steel used in rails would hold up under the stress put on them by locomotives and trains. Since then ASTM and similar organizations have developed standards for just about everything that moves in domestic or international trade.

Reliance upon the private sector for verification also characterizes the EU ETS and this is another pioneering and encouraging aspect of the EU ETS. The analogy here is not so much the testing and monitoring protocols that are widespread in commerce but the financial reporting that characterizes stock markets. Far greater sums of money are involved in these markets than will ever be the case for the carbon market and the system works well. There are occasional abuses but as Arthur Anderson learned in the Enron scandal, even before the *coup de grace* administered by the Department of Justice, clients flee once the firm's integrity is called into question.

There may be differences in how emissions are monitored and reported within different countries, as there are for financial reporting, but these will be transparent and well known to those who trade in the commodity or asset. And there will doubtlessly be movement towards standardization across systems, although it is unlikely ever to be complete harmonization. The differences that count are not the particular form of the monitoring and reporting, but the fundamental integrity of the data being reported. To take a pedestrian example, we don't care whether things are measured in metric or other units so long as we can be confident that the measure is accurate however denominated.

The answer to question raised by the title to this talk, *Where Are We Headed?*, might be seen as an upstream system. I believe this to be the case, but that is a far less important aspect than the movement towards a system that is more similar to existing institutions that support global trade in commodities and securities. These systems have developed to meet the needs of participants in the respective markets for a common standard and the consequent demand for reputation in neutral third parties that can test, measure, and certify adherence to that standard. We should not underestimate the demand for reputation and the ability for this demand to be supplied with minimum government involvement. I think this is where we are headed and I think it is a good direction.