Industrial Gas Projects Caused Millions Of Phantom Emission Reductions, New Study Shows

BRUSSELS, October 18, 2010 – Incentives created by the UNFCCC Clean Development Mechanism (CDM) have caused a significant shift of adipic acid production from plants in industrialized countries to CDM plants in China and South Korea, a new study shows. This has led to "carbon leakage" – a shift in production that leads to an overall increase in emissions – and the issuance of 13.5 million offsets that represent phantom emissions reductions.

Background: Nitrous oxide, an unwanted by-product in the production of adipic acid, is also a very potent global warming pollutant. Adipic acid is used most commonly to make nylon, and producers in developing nations can earn carbon credits through the Clean Development Mechanism (CDM) by installing and using equipment to destroy their nitrous oxide by-product.

Industrial gas projects implemented under the CDM have come under increased scrutiny. The UNFCCC is currently investigating allegations that HCFC manufacturers are gaming the CDM system and undermining carbon markets by intentionally maximizing the emissions they can earn credits for. CDM Watch commissioned a study by the Stockholm Environment Institute to analyze whether adipic acid projects also pose a risk to the environmental integrity of the CDM.

Key Findings

The study shows that profits from CDM revenue are so large that they have, in some cases, subsidized adipic acid production costs to below zero, giving CDM plants a large competitive advantage. This has caused a shift in production from non-CDM plants to CDM plants.

"*We have known for some time that these projects accrue tremendous profits through the CDM*" said Michael Lazarus, a senior scientist at the Stockholm Environment Institute and co-author of the study. "*Our new findings show that these profits have evidently led to significant shifts in adipic acid production away from non-CDM plants to CDM plants, and strongly indicate that carbon leakage has occurred*".

Only four of the more than 2,300 projects currently registered under the CDM are adipic acid projects. Yet these four projects account for almost 20% of the almost 440 million credits issued to date under the CDM.

Nitrous oxide abatement costs for adipic acid producers are very low, ranging between €0.10 – 0.40 per tonne of CO_2e reduction. Producers can sell a carbon credit for each tonne of reduction at approximately € 13. Moreover, CDM projects can take credit for 100% of their nitrous oxide reductions, despite the fact that large sections of this industry are already voluntarily abating at least 90% of their nitrous oxide emissions without any monetary incentives. This enables CDM plants to net carbon revenues of about €1,000 per tonne of adipic acid.

This puts CDM plants in a position where they can produce adipic acid at very low or even negative costs, putting non-CDM plant operators at a large competitive disadvantage. The study shows that although global demand for adipic acid dropped sharply in 2008 and 2009, the plant utilization rate of CDM plants stayed at 85% while the utilization rate for non-CDM plants dropped to 60%.

"*Assuming that the plants would have operated at the average global rate, we estimate that this shift in production resulted in about 13.5 million credits being issued in 2008 and 2009 that did not represent actual emissions reductions,*" explains co-author Anja Kollmuss. "*That is about 20% of all credits issued for adipic acid projects. These credits are bought to offset emission reduction requirements in the EU and elsewhere. They lead to an increase in emissions because the buyers of these offsets are then entitled to increase their emissions."*

In contrast, all three Joint Implementation (JI) adipic acid projects have to take into account common industry practice and can only receive credits for abatement beyond the 90% level, netting profits of about € 90 per tonne of adipic acid. The study did not identify any harmful production shifts due to JI projects. The study also noted that both CDM and JI projects achieved extremely high abatement efficiencies of 98% to 100%, higher than had been previously considered technically feasible. The successful implementation of JI projects with such high abatement efficiencies, despite much less credit revenue, suggests that abatement projects can still be profitable.

Who Profits?

French company Rhodia operates the two CDM plants in South Korea and Brazil and has received almost 65 million credits so far from those two projects. Chinese companies PetroChina and Shemna operate the other two plants that have so far received about 13 million and just under 7.5 million credits respectively. The Chinese government imposes a 30% levy on carbon credits from these projects.

Strong Action Is Needed

The study explores different options for preventing competitive distortions and carbon leakage that ensure that nitrous oxide emissions are abated, such as introducing an ambitious benchmark in the CDM methodology.

While such a benchmark could be very effective and efficient, a revised version of the crediting methodology would require a decision by the CDM Executive Board and would only apply at the renewal of the crediting period. Given the uncertainty of its adoption, and the delay in taking effect until 2013-2015, the study notes that the regional and national entities as well as buyers could consider demand-side restrictions, such as excluding or discounting credits from adipic acid projects as more immediate options.

"W*e cannot depend on the CDM Executive Board which has a record of delaying action to improve flawed crediting methodologies"* said Eva Filzmoser of CDM Watch. *"Strong action is needed on the part of the EU to put a stop to this offset charade. Credits from these projects as well as from HFC-23 destruction projects must be excluded from the EU's Emissions Trading Scheme. This will enable a shift to better quality projects that result in legitimate offsets and real emissions reductions*."

A second study assessing the CDM projects that abate nitrous oxide from nitric acid production will be published shortly.

The study can be downloaded at http://www.sei-international.org/publications?pid=1621

About CDM Watch: CDM Watch is an initiative of international NGOs and was re-established in April 2009 to provide an independent perspective on CDM projects, methodologies and the work of the CDM Executive Board. The ultimate goal is to help ensure that the current CDM as well as a reformed mechanism post-2012 are effectively verified, and to contribute to sustainable development in CDM host countries.

About the Stockholm Environment Institute: The Stockholm Environment Institute is an independent international research institute engaged in environment and development issues at local, national, regional and global policy levels for more than 20 years. SEI has established a reputation for rigorous and objective scientific analysis in the field of environment and development. Our goal is to bring about change for sustainable development by bridging science and policy.

The Clean Development Mechanism: The Clean Development Mechanism (CDM) is one of the three flexible mechanisms contained in the Kyoto Protocol. It allows entities from Annex I (developed) Parties to develop emission-reducing projects in non-Annex I (developing) countries, and generate tradable credits corresponding to the volume of emission reductions achieved by that project.

Joint Implementation: Joint Implementation is one of the three flexible mechanisms of the Kyoto Protocol, and like the CDM, is project based – i.e. industrialised countries get reduction credits for investing in emission reducing projects in another country. In the case of JI projects, however, both countries have to have a reduction commitment under the Kyoto Protocol, unlike the CDM where the projects happen in countries without a reduction commitment. JI mainly involves projects in Eastern European countries and the former Soviet bloc.

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