

Q&A on Industrial Gases and the CDM in the EU ETS

9 November 2010

	HFC-23	N ₂ O from Adipic Acid
Q1: What is it?	HFC-23 is an unwanted byproduct from the production of HCFC-22, a refrigerant gas that is currently subject to a phase-out under the Montreal Protocol due to its ozone-depleting properties. As a greenhouse gas, HFC-23 is 11,700 times more potent than CO ₂ and has an atmospheric lifetime of 250 years.	N ₂ O, nitrous oxide, also called 'laughing gas' is an unwanted by-product of adipic acid production. It is about 310 times more potent than CO ₂ and has an atmospheric lifetime of 114 years. Adipic acid is an organic chemical that is used as a building block in a range of different products, most importantly polyamide, often referred to as "nylon."
Q2: What is the purpose of this project type under the CDM?	The CDM issues carbon credits for the destruction of HFC-23 gases to prevent their release into the atmosphere. The CDM issues one credit for each tonne of CO ₂ that is avoided. Since 1 tonne of HFC-23 is 11,700 times more potent than CO ₂ , project developers receive 11,700 credits for each tonne of HFC-23 that is destroyed. This makes the destruction of HFC-23 a very lucrative business.	The CDM issues carbon credits for the destruction of N ₂ O gases to prevent their release into the atmosphere. Because N ₂ O is 310 times more potent than CO ₂ , project developers get 310 credits for each tonne of N ₂ O that is destroyed.
Q3: What share of the CDM do these projects represent?	There are currently 19 HFC-23 abatement projects registered under the CDM. These 19 projects are projected to deliver more than 476 million carbon credits by 2012. Almost half of these credits (218 million) have already been issued, representing about 50% of the credits from all CDM projects issued to date.	There are currently four N ₂ O (from adipic acid) destruction projects registered under the CDM. These four projects are projected to deliver more than 161 million CERs by 2012. More than half of these credits (85 million) have already been issued, representing about 20% of the credits from all CDM projects issued to date.

Q4: What is the problem with the current CDM rules under which these projects are implemented?

The current rules governing the way in which HFC-23 destruction projects are implemented under the CDM actually lead to an increase in HFC-23 production: the prospect of earning vast revenues from HFC-23 destruction incentivizes the production of HCFC-22 and leads to higher HFC-23 emissions than would otherwise occur in the absence of the CDM. This results in the generation of millions of credits that do not represent real emission reductions.

Currently CDM adipic acid projects can receive credits for 100% of their N₂O abatement, even though large parts of the industry have been abating 90% of their emissions on a voluntary basis since the 1990s.

As a consequence, the profits from CDM revenue (about €1,000 per tonne of adipic acid) are so large that they have, in some cases, subsidized adipic acid production costs to below zero, giving CDM plants a considerable competitive advantage. This has caused a shift in production from non-CDM plants to CDM plants and this in turn can lead to 'carbon leakage' the sale of credits that do not lead to emissions reductions.

Q5: How does this project type undermine climate protection objectives?

The current CDM rules (as spelled out in UN methodology AM0001) incentivize running a plant in such a way that it produces high levels of HFC-23, which is normally just an unwanted by-product of HCFC-22 generation. Recent analysis shows that CDM plant operators appear to maximise the amount of HFC-23 produced up to the level that is credited, rather than using best available technology to minimize the HFC-23 produced. Therefore a proportion of these gases would not have been produced without the incentives from the CDM, and the resulting credits do not represent real emission reductions. Because they are nevertheless used as offsets that replace domestic emission reduction obligations, they actually lead to an increase in net emissions.

In addition to being an ozone depleting gas, HCFC-22 is also a potent greenhouse gas. By incentivising the production of HCFC-22 the CDM is perversely subsidizing the production of a very potent ozone destroyer and greenhouse gas.

The shift in production to CDM plants away from countries with an emissions cap or countries that voluntarily abate N₂O from adipic acid creates what is called 'carbon leakage' - the sale of credits that do not lead to emissions reductions. A recent study¹ estimates that in 2008 and 2009 about 13.5 million credits did not lead to net emission reductions. That represents about 20% of all credits issued for adipic acid projects. These credits lead to an increase in emissions because the buyers of these offsets are then entitled to increase their emissions correspondingly.

<p>Q6: How much does it cost to destroy these climate gases and who pays?</p>	<p>The destruction of HFC-23 can be carried out at a cost of approximately €0.17 per tonne of CO₂e. However, when this destruction is commoditized and sold as carbon credits on the EU ETS market it can command as much as €12, some 70 times more than it costs to destroy the gas.</p>	<p>The destruction of nitrous oxide costs adipic acid producers an estimated €0.60 per tonne of CO₂e reduction. Yet producers can sell each carbon credit for approximately €12, some 20 times more than it costs to destroy the gas.</p>
<p>Q7: What are the best solutions in terms of mitigating these gases at international level?</p>	<p>HFC-23 destruction should be funded through non-market mechanisms. A promising solution would be to pay for HFC-23 destruction via the Montreal Protocol's Multilateral Fund. A decision to this effect was proposed by North American countries in June 2010 and will be discussed at the Montreal Protocol Meeting of the Parties in November 2010.</p>	<p>The best solution would be to require the destruction of this gas via regulation and, where necessary, provide financing through a designated funding mechanism. Alternatively, establishing a stringent benchmark for CDM projects, similar to that used for JI projects, could prevent carbon leakage.</p>
<p>Q8: Why should credits from these project types be removed from the EU ETS?</p>	<p>In 2009, HFC-23 credits accounted for 60% of all offsets surrendered within the ETS, leaving little room for the sustainable projects for which the CDM was originally designed. More importantly, since a significant portion of these credits are from destroying gases that would not have been produced without the incentives from the CDM, they actually undermine the EU's climate goals and lead to an overall increase in emissions.</p> <p>Even if the CDM Executive Board did choose to address this flaw, a new crediting methodology would only apply at the renewal of a CDM project's current crediting period, which could be as late as November 2018 in the case of some projects.</p>	<p>In 2009, N₂O (from adipic acid) projects accounted for 25% of all carbon offsets surrendered within the ETS.</p> <p>Currently there are no regulatory initiatives afoot to deal with N₂O abatement in developing countries outside the CDM. Introducing a stringent benchmark in the CDM crediting methodology would address the current shortcomings but such a change needs to be approved by the CDM Executive Board. Amending methodologies can be a long and drawn-out process. Even if the CDM Executive Board acted fast, such a benchmark would only take effect at the renewal of the crediting period in 2013 or 2015.</p> <p>To ensure fast action, adipic acid credits should be excluded from the EU ETS until a stringent benchmark for these CDM projects has taken effect. This will send a signal to the UNFCCC that</p>

the EU is serious about improving the quality of CDM credits used in the EU-ETS.

Q9: Exclusion is a blunt instrument: why not opt for a less controversial solution such as discounting?

The large profits generated from the sale of carbon credits are incentivizing and subsidizing the production of HCFC-22. But HCFCs are being phased-out by the Montreal Protocol because they are an ozone destroying substance. Since 2002 HCFC consumption in developing countries has grown at approximately 15% per year. Under phase-out agreements developing countries must freeze production and consumption at 2009-2010 levels and begin reductions in 2015. The CDM is increasing market dependency on HCFC gases right at the time when markets need to be weaned off their use.

Only an outright ban on credits from HFC-23 projects will lead to the long-term solution required to abate HFC-23 emissions. Discounting would only postpone a decision under the Montreal Protocol since it would not remove the economic incentives which make HFC-23 destruction under the CDM such an attractive proposition for plant owners.

If a unilateral discount was applied through the EU-ETS before the CDM Executive Board has revised the crediting methodology to include a stringent benchmark, it could have the indirect effect of enabling the CDM EB to postpone introducing such a factor at international level.

Q10: What's the problem with banking carbon emission reductions?		All CDM projects	Adipic acid (4 projects)	HFC-23 (19 projects)	
	Total carbon credits expected by 2012	1.8 billion	161 million	476 million	<p>The EU is by far the largest buyer of CDM credits: Several other countries also use CDM credits for compliance with their Kyoto targets but the majority of all CERs sold are used for compliance by EU operators, either for targets under the EU ETS or targets agreed by Member States for sectors outside the EU ETS.</p> <p>Current rules allow operators to bank credits from the second to the third trading period of the EU ETS.ⁱⁱ This could mean that the HFC-23 and N₂O from AA credits that were not used in Phase II of the EU ETS (2008-2012) could be carried over for compliance under Phase III (2012-2020), which would severely damage the environmental integrity of the EU ETS post-2012.</p>
	Total issued carbon credits to date	450 million	95 million	218 million	
	Carbon credits expected to be generated between now and 2012	1.35 billion	66 million	258 million	
	Number of credits surrendered in EU ETS in 2008 and 2009 ⁱⁱⁱ	160 million	37 million	97 million	

Q11: How can Europe's climate target be achieved without these credits?

According to the European Environment Agency the European Union's current emissions are 17% lower than they were in 1990. This is very close to the current 20% by 2020 reduction target for the EU. Even under a 30% reduction target the demand for external credits will be much lower than projected in 2008.

In addition to this, there is clear proof of a large over-allocation of emissions allowances under the EU ETS. A recent report by Société Générale estimates that the EU ETS will see a surplus of allowances until at least 2017^{iv}. This confirms an earlier calculation by Sandbag, which estimates that a billion surplus allowances have been handed out in Phase II of the Scheme^v. The overallocation of allowances has been compounded by a considerable drop in output – and therefore emissions – as a result of the economic crisis.

The exclusion of these credits would be one more step towards ensuring that Europe's emissions reductions are real and that CDM credits come from projects that deliver genuine benefits to developing countries and are not just a cheap way for industries in the EU to meet their emissions reduction obligations.

Q12: Do other industrial gases face similar problems?

N₂O destruction at nitric acid plants under the CDM accounts for far fewer credits than N₂O from adipic acid and HFC-23 projects (in total, N₂O from nitric acid credits represent about 3.5% of all CDM credits issued so far). Although there are important areas where the nitric acid methodologies could be improved and strengthened, on the whole this project type does not seem to be marred with the type of wide-spread manipulation or carbon leakage that has been seen in the case of HFC-23 and N₂O from adipic acid. A recent study^{vi} shows that the CDM has in fact been effective in fostering abatement in an industry that had not been abating N₂O emissions previously.

Q13: At a time of economic crisis, is it fair to ask industry to shoulder the burden of yet more regulatory uncertainty?

Many investors made the decision to invest in industrial gas projects after the adoption of the revised EU ETS Directive in 2008^{vii} – so they must have been well aware that the European Commission could introduce quality restrictions for certain project types at some point. Neither the HFC-23 nor the N₂O from adipic acid debate is new: investing in these abatement projects has always been controversial and was therefore a calculated risk, for which investors have already reaped large financial rewards.

Q14: How can you expect investors in the secondary market to be able to identify the origin of the products they invest in? Is it fair to penalise them?

While it is true that purchasing secondary carbon credits via an exchange does not currently enable the buyer to determine their source, procuring carbon credits over the counter (OTC) does^{viii}. OTC trades currently account for around 60% of the market^{ix}. It is therefore entirely possible for companies to make informed choices about what they buy and adopt a responsible approach to purchasing carbon credits in the secondary markets. As is already the case for other project activities that are restricted in the EU, e.g. forestry projects.

Q15: Is it likely that the Commission will introduce further quality restrictions in the future?

The Commission's proposal only addresses restrictions on the use of offset credits from industrial gas projects. This does not preclude action to restrict the use of credits from certain other project activities from the EU ETS in the future.

Existing quality restrictions: there is already a ban on carbon offsets from forestry projects in the EU ETS. In the case of large hydropower projects with a generating capacity exceeding 20 MW, Member States must ensure that relevant international criteria and guidelines, including those contained in the World Commission on Dams November 2000 Report "Dams and Development: A New Framework for Decision-Making", are respected during the development of such project activities.

Contact details:

Natasha Hurley, Policy Advisor CDM Watch
Tel: +32 485 301 049
Email: Natasha.hurley@cdm-watch.org

Fionnuala Walravens, Campaigner Environmental Investigation Agency
Tel: +44 207 3547960
Email: fionnualawalravens@eia-international.org

ⁱ "Industrial N2O Projects Under the CDM: Adipic Acid - A Case of Carbon Leakage?", Stockholm Environment Institute, <http://sei-us.org/publications/id/353>

ⁱⁱ EU ETS Directive, Article 11a(2): "To the extent that the levels of CER and ERU use, allowed to operators or aircraft operators by Member States for the period from 2008 to 2012 have not been used up or an entitlement to use credits is granted under paragraph 8, operators may request the competent authority to issue allowances to them valid from 2013 onwards in exchange for CERs and ERUs issued in respect of emission reductions up until 2012 from project types which were eligible for use in the Community scheme during the period from 2008 to 2012. Until 31 March 2015, the competent authority shall make such an exchange on request"

ⁱⁱⁱ Data derived by www.sandbag.org.uk from the Community Independent Transaction Log

^{iv} "EU ETS oversupplied until at least 2017: report", Point Carbon, 25 October 2010

^v "Cap or Trap? How the EU ETS risks locking in carbon emissions", Sandbag, September 2010 (http://www.sandbag.org.uk/site_media/pdfs/reports/caportrap.pdf)

^{vi} "Industrial N2O Projects Under the CDM: The Case of Nitric" Acid Production <http://sei-us.org/publications/id/354>

^{vii} Article 11a(9) of the EU ETS Directive states: "From 1 January 2013, measures may be applied to restrict the use of specific credits from types."

^{viii} « Secondary CERs and Sourcing Strategies », Point Carbon Report commissioned by the Danish Energy Agency, 26.01.2010 (http://ens.dk/da-DK/KlimaOgCO2/Klimaprojekter/statens_projekter/Reelle_CO2_reduktioner/Evalueringer/Documents/Secondary%20Carbon_credits%20FINAL.pdf)

^{ix} « Coping with Climate Change : Risks and Opportunities for Insurers », The Chartered Insurance Institute, 2009

(<http://www.cii.co.uk/ciiimages/public/climatechange/ClimateChangerreportChp17.pdf>)