

Manipulation of the carbon emissions system threatens climate targets

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Manipulation of European Union Emissions Trading system (EU ETS) by the buy, bank, burn program compensates unregulated emissions while regulated sectors carry a large part of the burden. This distorts the balance between regulated firms and non-regulated projects, so parties outside the EU ETS can be virtuous at the cost of others. Environmental economists Reyer Gerlagh and Roweno Heijmans of the Tilburg School of Economics & Management discovered a leak in the system.

The EU Emissions Trading System (EU ETS) is an important system to reduce CO₂ emissions in the Netherlands and Europe in order to achieve

the [climate targets](#) (zero emissions by 2060). But is it effective? And can we, citizens, consumers, contribute? Yes, indeed. However, the system is leaking, the authors discovered. Their findings were recently published in *Nature Climate Change*.

Large companies must buy emission rights for each ton of CO₂ they emit. Without these permits they are not allowed to emit CO₂, otherwise they will be severely punished with high fines. Companies can buy, sell and burn the rights, but also may save them for later ('bank'). In the Netherlands the Dutch Emissions Authority (NEa) is responsible for compliance and punishment.

Regulation within ETS

EU ETS, the flagship of European climate policy, regulates the [greenhouse gas emissions](#) of some 11,000 companies, together accounting for 45 percent of Europe's emissions. Approximately 450 companies in the Netherlands fall under the ETS regime, of which 20 percent is responsible for 90 percent of total Dutch CO₂ emissions covered by EU-ETS. We are talking about large, energy-intensive companies in the electricity sector, refining industry, chemical industry and the metal sector, such as Shell, Exxon, Tata Steel, Dow Benelux, Akzo and Chemelot.

Purchase outside ETS

Emission rights can also be purchased, sold and banked by governments, non-governmental organizations and consumers from outside the ETS. Unregulated sectors include agriculture, road transport and aviation to destinations outside the European Economic Area. Reducing emissions by non-ETS parties can come about in two ways: (1) abatement outside ETS through emission reduction projects, for example, reducing

highway speed limits or substituting bikes for cars; and (2) abatement through the ETS by buying allowances from it and annihilating them, a practice we call 'buy and burn.' There are various private initiatives outside the ETS that intervene in the ETS: such as Carbonkiller in the Netherlands, Sandbag in the UK and The Compensators in Germany.

Carbonkiller

Carbonkiller allows everyone to buy and destroy CO₂ emission allowances from the EU ETS. The corresponding CO₂ can therefore no longer be emitted by the industry. The less of these permits in circulation, the lower the total possible emissions of EU super polluters and the greater the incentive to innovate.

National climate policy

The total emissions of all EU countries until 2030 are fixed (after 2030 they are not yet legally ratified), with the number of allowances issued decreasing every year until they are zero, somewhere between 2050 and 2060. However, emissions move through time and space. Policy in one member state (i.e. the Netherlands) to limit emissions within its own borders can be frustrated by higher emissions in other member states and/or years. National climate policy will then lead to a fall in demand and the price of emission rights, but not in reduction of CO₂ emissions. National climate policy can therefore be ineffective due to the ETS. The so-called carbon leakage. Reason why the Market Stability Reserve (MSR) was established. The MSR enables the EU to withdraw emission allowances from the market. Problem tackled, you think.

Emissions succeeded. Mission failed

But here's a catch, according to environmental economists Gerlagh and

Heijmans of Tilburg University. When parties from outside the ETS buy allowances from the ETS (e.g. because the CO₂ price is cheaper), the effect is an increase in the demand for emission allowances. This leads to a decrease of the "bank," which also causes the MSR to shrink. The system then responds by distributing more allowances to the market. Some of the depreciated allowances are then returned to the system.

The authors calculated that if an individual buys and burries 1 ton of allowances, the total emissions in the EU ETS might fall by 2/5 tons. The effectiveness of "buy and bury" has thus been reduced by 60 percent. That would mean robbing Peter to pay Paul. Emissions succeeded. Mission failed.

Leverage effect

But it could also be done the other way around, according to Gerlagh and Heijmans. The system can be manipulated and exploited by outsiders because it is not mandatory to write off allowances purchased today immediately. Purchased emission rights may be held in stock ('bank') for some time, to be destroyed ('burn') later. The effect is that both the 'stock' and the MSR increase, which in turn leads to a decrease in the future amount of allowances. In this case the purchase of 1 ton of emission rights leads to a total reduction in emissions of 5/3 tons. Looks pretty good, but parties within ETS pay the bill. From the 5/3 tons [emission](#) reduction, only 1 ton was purchased by parties outside the ETS. The remaining 2/3 tons of reductions are entirely paid for by regulated industries. Smart free-driving allows unregulated agents to impose part of the private abatement costs on regulated bodies: climate-conscious consumers can be virtuous at the cost of others.

Green paradox

The findings by Gerlagh and Heijmans were recently published in *Nature Climate Change*. The authors recommend that, when reforming the EU ETS, it would be a good idea to uncover this 'leak' that frustrates the intended CO₂ reduction.

The Tilburg scientists went to the Dutch Emissions Authority (NEa) and the EU to discuss the effects of the 'leak' on the Dutch climate agreement. Calculations show that domestic climate policy is effective on the short run, but may lead to more emissions if policy is focused on the long run: a green paradox.

Can the leak be closed? For the time being, there is no answer to this question. Until recently, no one was aware of this leak. The authors expect that it will take some time before the topic will be put on the agenda.

More information: R. Gerlagh & R. Heijmans: Climate-conscious consumers and the buy, bank, burn program, *Nature Climate Change*, June 2019

R. Gerlagh & R. Heijmans: Why the new EU-ETS is almost perfect, *EAERE Magazine*, 2018

Scientists' Manifesto, NRC 25-1-2019 (in Dutch)

D. van Soest, R. Gerlagh & S. Smulders (red.): *Lessen voor het Nederlands Klimaatbeleid, Preadviezen Koninklijke Vereniging voor de Staathuishoudkunde (KVS, 2018, in Dutch)*

Call by scientists: Wij zijn het eens: CO₂-heffing hard nodig, ook voor de Nederlandse industrie (incl. the Tilburg economists H. Benink, L. Bovenberg, H. van Dalen, S. Eijffinger, K. Koedijk, S. Smulders, F. Sniekers, D. van Soest, A. van Soest, A. de Zeeuw), *ESB 25-1-2019 (in*

Dutch)

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