



Steam and exhaust rise from the chemical company Oxera (front) and the coking plant KBS Kokereibetriebsgesellschaft Schwelgern GmbH (behind) in 2017 in Oberhausen, Germany.

Photographer: Lukas Schulze/Getty Images

Tackling the Great Climate Unmentionable

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Recalculating every two years the price of having emitted huge amounts of carbon in the past, based on changes in environmental damage, and stretching out payments, could be a powerful yet affordable incentive to reduce accumulated greenhouse gas emissions, environmental attorneys Michael H. Levin and Alan P. Loeb say.

Last summer, [we explained](#) why emissions trading, or ET, is far better positioned than a carbon tax to reduce current greenhouse gas emissions, or GHGs, based partly on ET's 50-year track record versus negligible results from adopted emission taxes. We closed with a look at how to start addressing the "great climate unmentionable"—the GHG "legacy" emissions already in the atmosphere, which total [many trillion tons](#) compared to the roughly 36 billion tons of emissions currently added each year by fossil-fuel or similar activities.

Evidence is accelerating that we already may have reached a climate tipping point, [are running out of time](#) to mitigate climate catastrophe, and may have little choice but to remove existing carbon from the skies. This evidence underscores growing awareness that substantially reducing new GHG emissions will not be enough. While short-term GHGs like methane may be dealt with, the enormous volume of long-lived past GHGs likely will swamp broader efforts.

What's to Be Done?

The Clean Air Act, or CAA, has long recognized that existing-source emissions of fine particulates or smog precursors are the critical public-health issue—and that limiting emissions from new “major” sources is a “backstop” to ensure added emissions will not undermine planned emission reductions. But the CAA deals with local or regional emissions that disperse over relatively short times; it basically seeks to limit emissions enough so they won't concentrate in harmful amounts.

GHGs, which accumulated permanently over centuries, are very different. Thinking about them in CAA terms risks missing the issue. This is because at bottom, the atmosphere cares little about GHG emissions—it reacts to total GHG chemical concentrations. And accumulated past concentrations mean the “climate crisis” is not an emissions issue, but a legacy issue. While reducing current GHG emissions remains important, it only will slow—not decrease—the rate of GHG concentration. Reducing current emissions enough even to make a dent in total concentrations would be prohibitively expensive. A coordinated framework to start tackling both current and legacy emissions is required.

Nonexistent Concentration-Based Remedies

No concentration-based remedy that directly addresses legacy GHG emissions is currently on the table. The climate remedies now being discussed all focus on prospective emission reductions, by tax or emissions trade. Unfortunately, using these methods to reduce the atmospheric concentration would vastly overprice the cost of cutting current emissions if those cuts mean to compensate for overhanging legacy emissions in any meaningful respect.

Worse, these remedies [have a basic fairness problem](#): They impose most of their costs on taxpayers and/or consumers. For example, a carbon tax is designed to fall on consumers—it's intended to, say, reduce end-stage gasoline or fossil-fueled electricity use or encourage purchase of mileage-efficient cars. Rebating tax proceeds to consumers, while facially fairer, merely transfers those GHG reduction costs to taxpayers who ultimately will foot massive bills for adaptation. Since taxpayers are consumers, rebates start to look like a dog chasing its tail.

If both energy producers and energy consumers benefited from past fossil-fuel transactions, why do the only remedies being discussed place most of the remediation burden on taxpayers and consumers and very little on producers? Why hasn't a remedy been proposed in which carbon-source industries—for example, the oil, gas and coal sectors—would be responsible for a fair share of the remediation costs, having benefited from those transactions?

A Possible Solution

Since all carbon dioxide, or CO₂, molecules have the same warming potential, they all should be treated equally. This may sound like common sense, but it implies a major innovation: It could start integrating current and legacy emissions in a single analytical framework.

How might pollutants that already have been emitted be reduced? Can they somehow, in effect, be un-emitted? This is where the incentives that underlie both ET and carbon taxes re-enter the picture. What if, say, Paris Accords signatories adopted either a regime of gradual reductions below a past-emissions baseline or an equivalent cash assessment approach based on dollars-per-CO₂-ton, with a predictable regular payment schedule?

Industrialized countries already have long-established models that seek to impose cleanup costs on entities responsible for past contamination. Those models have evolved substantially and could further be improved. They notably include Superfund-type programs across the states and around the world, plus a U.S. program whose remediation-focused excise tax on hazardous-waste generators [has just been rejuvenated](#).

Environmental-economics students know the price assessed for the right to emit should be based on the marginal damage caused per ton of emissions. If that price is recalculated, say, every two years based on changes in damage, and payments are stretched out rather than lump sum, they could be a powerful yet affordable incentive to reduce current emissions enough to lower the concentration, which in turn would lower all participants' assessed cost for past emissions. If, as we're currently seeing, emissions and resulting damages increase, the per-ton assessed cost would be raised by automatic formula, increasing incentives to reduce the concentration. Similar results might be achieved by assessing per-ton reductions rather than per-ton costs, leaving affected sources to determine their least-cost means of compliance.

In either case, an essential complement would be a tradeable offsets program under which carbon-intensive entities assessed for past emissions could meet that obligation by reducing or financing the reduction of their own or others' emission, or of [atmospheric carbon](#).

What if GHG-reduction technologies for feasible cuts at scale don't appear? There are at least two answers. Starting with catalytic converter requirements for passenger cars in the 1970s, to our knowledge no reasonably designed U.S. technology-forcing regime has failed. If this one should falter, the country still would have a multibillion-dollar fund for desperately needed adaptation.

There currently is no constituency for such legacy-GHG approaches. That's understandable, since none have been publicly proposed. Yet they seem inevitable. Remedies that call for responsible parties to bear or share cleanup costs date back decades. As GHGs accumulate, the concentration represented by new "added" emissions will become an ever-tinier part of the total, making legacy emissions impossible to ignore.

While this article focuses on CO2 concentrations, its suggestions could apply equally, based on established CO2-equivalent values, to other GHGs.

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