

CLIMATE EMISSION REDUCTION TARGETS: A BRIEF OVERVIEW

May 2013 Draft

I. INTRODUCTION

With the failure of cap-and-trade legislation in 2010, national-level climate policy action in the United States has largely stalled. New policy ideas are needed if the United States is to adopt an effective climate policy any time in the near future. This climate policy will have to be one that is low-cost, that provides businesses and investors with the certainty they need to make long-term investments, and that is environmentally effective.

Climate emission reduction targets (CERTs), which focus squarely on reductions, may be that policy approach. By doing away with emissions payments, they reduce compliance costs for emitters. The government imposes no charges and collects no revenue. CERTs are responsive to changing economic conditions and provide greater certainty about level of effort than other target-based policies. And the low cost of CERTs make it possible for companies to achieve deeper cuts.

This paper briefly describes the CERTs approach, its benefits, and how it might be implemented.

II. WHAT ARE CLIMATE EMISSION REDUCTION TARGETS?

A **climate emission reduction target** (CERT) is a requirement to achieve (or acquire) a quantity of greenhouse gas (GHG) *reductions* during a compliance period. This quantity is expressed as a percentage of an entity's emissions during the period. Another way to think of this is as a "pay-as-you-go" approach where, for each ton emitted, a certain percentage of a ton of reductions also must be achieved.¹ (See box on next page for a description of CERTs in equations.) A CERT could be set for the entire nation or there could be different CERTs for different economic sectors.

A climate emission reduction target (CERT) is a requirement to achieve or acquire a quantity of GHG reductions during a compliance period – expressed as a percentage of an entity's emissions during the period.

For example, if a CERT of 10% for the period 2015-2020 was set for a particular industry sector, then all companies in that sector (or those over a certain size) would have to demonstrate that during this period they had achieved or acquired GHG reductions equal to 10% of their emissions – or, using the "pay as you go" framing, that they achieved or acquired one ton of reductions for every ten tons they emitted. An emission reductions market would allow companies to purchase reductions when that is the more affordable option.

¹ Of course, the definition of "reduction" first must be agreed upon. See Section III below.

To get an idea of how many reductions they will need to achieve or buy during the compliance period, companies in sectors that are subject to CERTs would estimate what they expect their emissions to be. If they think they will not be able to make sufficient cost-effective reductions to cover their emissions during the commitment period, they would look to other covered companies in their sector and in other sectors subject to CERTs that have extra reductions to sell. Companies that find they have more cost-effective opportunities than they need to meet their CERT could achieve extra reductions and sell the excess to companies that have fewer reduction opportunities or bank their excess for future use.

CERTs could include a mechanism for offsets – reductions made by companies not covered by a CERT. Offsets would be governed by established rules covering such things as “additionality” (a showing that the reductions would not have occurred anyway), “leakage” (a tendency for emissions to shift to locations where there are no GHG constraints), and “permanence” (a likelihood that credited actions will not be reversed, as would happen if trees in a forest sequestration project are cut down). This is the standard approach to accounting for offsets in cap-and-trade systems.

Ultimately, companies would need to show that they achieved or acquired reductions (including offsets, if allowed) equal to the CERT percentage of their actual emissions. This point is worth repeating: what matters, at the end, is that the verified emission reductions companies have achieved (or acquired) as a result of actions they have taken equal the target percentage when compared to emissions during the commitment period.

CERTs in Equation Form: Promoting In-House Reductions

A CERT is defined as a percentage of a company’s emissions (E) during the commitment period. A company’s required reductions (RR) during that period can be expressed simply as:

$$RR = CERT \times E$$

So, if a company emits 200 tons during the commitment period, is operating under a 10% CERT, and achieved 20 tons of in-house reductions, then it would have met its target:

$$\begin{aligned} RR &= CERT \times E \\ &= 10\% \times 200 = 20 \end{aligned}$$

Say the company achieved only 10 tons of in-house reductions instead of 20. Its emissions would thus be 10 tons higher, at 210 tons. Its required reductions would then be:

$$\begin{aligned} RR &= CERT \times E \\ &= 10\% \times 210 = 21 \end{aligned}$$

Having achieved only 10 tons of in-house reductions, the company would need to purchase 11 tons of reductions on the market to meet its CERT – *not* 10.

A CERT thus does not place achieved and purchased reductions on equal footing. It provides a slight incentive for achieving in-house reductions.

(*Note*: Achieved and purchased reductions can be equalized by adding a term for in-house reductions to the equation for RR:

$$RR = CERT \times (E + R_{in-house})$$

This converts CERTs from being a percentage of actual emissions to being a percentage of business-as-usual emissions and eliminates the incentive to achieve reductions in-house.)

III. IMPLEMENTING CLIMATE EMISSION REDUCTION TARGETS

To put CERTs into practice, there would have to be agreement on how to define and account for “reductions,” which sectors to start with, the targets for each sector, what to report, and how to assess compliance.

- **Defining and accounting for reductions** – Many companies already have experience with GHG accounting and inventory procedures (e.g., the WRI/WBCSD *GHG Protocol Corporate Accounting and Reporting Standard*, ISO 14064), so companies should have little difficulty tracking the level of reductions that flow from their actions. There will have to be agreement on the types of reductions that get credit – in the parlance of the *GHG Protocol*, whether companies will get credit only for reductions that occur in Scope 1 (direct GHG emissions) or also for Scope 2 (indirect GHG emissions from purchased electricity) and Scope 3 reductions (other indirect GHG emissions, such as in the supply chain or from customer use of products). As noted above, to promote reductions in sectors not covered by a CERT, offsets could be included in the system as well. But it is important to note that CERTs is not about offsets, and it is not a domestic version of the Clean Development Mechanism; rather, CERTs is about GHG-emitting companies achieving emission reductions.
- **Choosing sectors and sources** – At the outset, CERTs would apply to sources and sectors for which GHG accounting can be done with a high degree of certainty and ease of administration. Consequently, CERTs would probably be limited to the same sectors and sources that could feasibly be subject to a fixed target. Again, sectors and sources not covered by a CERT could potentially be included as providers of offsets, if desired.
- **Developing targets** – Economic sectors have different opportunities and costs, and thus potential, for achieving emission reductions. If a sector-by-sector approach is taken, defining targets for each sector will require political negotiation. CERTs would increase in each successive commitment period,² and there must be agreement at the outset that CERTs in subsequent periods may need to be adjusted to account for new information.
- **Reporting & Verification** – Companies must have their reductions independently verified to ensure that they are permanent, that they are the result of actions taken by the company, and that the possibility of leakage has been accounted for. Verification procedures should be based on federal guidelines to ensure uniformity. Following verification, companies would report their emissions levels, actions taken to reduce emissions, verified reductions that resulted from those actions, and any reductions purchased. So, for example, an industrial manufacturing company operating under a CERT would report not just that its emissions dropped by a given percentage, but also that it switched the fuel in its boiler (resulting in X amount of reductions), installed high-efficiency lighting in its facilities (resulting in Y amount of reductions), and bought Z amount of reductions on the market.
- **Assessing compliance** – Each company's *required reductions* (the reductions required by its CERT) would be determined at the end of the commitment period (or, during a "true-up" period following the commitment period) by multiplying its actual emissions by the CERT. An assessment would then be made of the reductions achieved or acquired by each company to certify that they have been verified, are sufficient in number, and meet all definitional requirements of reductions.

Apart from defining reductions, setting targets, and ensuring compliance, there need not be much of a role for government in the operation and implementation of CERTs. Private-sector entities (e.g., trading platforms) could coordinate the sale and purchase of emission reductions.

² A 100% CERT would mean that every remaining ton of emissions in the targeted sector has been matched with an achieved or acquired ton of reductions. Theoretically, a CERT could exceed 100% (e.g., requiring 1.5 tons of reductions for every ton of emissions).

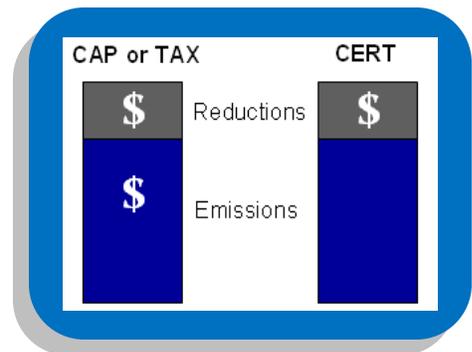
IV. ADVANTAGES OF CLIMATE EMISSION REDUCTION TARGETS

Why might CERTs be a good approach? For starters, compared to other approaches, CERTs could:

- reduce costs for businesses and consumers;
- provide greater certainty about the level of effort businesses will need to make to achieve their target;
- provide greater certainty that businesses will take sustained action to reduce emissions; and
- achieve strong environmental outcomes.

A. *Low Costs for Businesses and Consumers*

Companies resist climate policy mainly out of concern that it will increase their costs. Unlike, say, a carbon tax or cap-and-trade system with auctioned allowances,³ CERTs do not require businesses to pay for every greenhouse gas *emission*. (See figure at right.) Under CERTs, businesses would only have to pay for achieving or acquiring their required *reductions*. So, if a company in a given sector emits 200 tons and has to meet a 10% CERT, it will only have to pay to achieve or acquire 20 tons of reductions (and, depending upon the method used to achieve these reductions, it may actually profit from the effort).



Consumers also care about the cost to companies to the extent that those costs result in higher consumer prices. The costs of a CERT system would be lower for consumers as well, as businesses would have lower costs to pass along. All else being equal, it stands to reason that politicians are more likely to adopt lower-cost policies than higher-cost ones. Furthermore, lowering the cost to companies of achieving reductions could make it feasible for them to achieve *higher levels of reductions* than would otherwise be possible.

While the cost to businesses and consumers of reducing emissions would be less under a CERT than it would be under an equivalent cap or tax, it is important to note that, like a cap or a tax, a CERT is a market mechanism (it allows reductions to be made in order of cost). Like other market mechanisms, CERTs would send a “price signal” to the market, but this signal would be experienced as a price for reductions rather than as a cost of carbon.

B. *Certainty of Effort*

Compared to fixed targets, CERTs would provide companies with a higher level of certainty about the effort they will need to make to meet their objectives, which would help them plan for the future. Unanticipated changes in the economy or other factors that affect emissions would have a relatively small impact on the amount companies will have to reduce, particularly early on when targets are likely to be modest.

³ Companies do not have to pay for their emissions if allowances are allocated for free, but the effect on consumer prices is the same, whether allowances are auctioned or allocated. Both theory and experience (in the EU Emissions Trading System, for instance) show that the value of allocated allowances is generally captured by the company as a “windfall” and is not passed on to consumers. An alternative to allocating allowances would be to auction them and return the proceeds to consumers *per capita* as a dividend, but companies resist this approach.

This is not the case with approaches that focus on achieving a fixed level of emissions, such as cap-and-trade. In the face of unanticipated change (e.g., a very robust or weak economy), a fixed target intended to reduce emissions by 10% from expected levels could become in reality a 20% target (which could force emitters into non-compliance) or a 0% (or even a negative) target (which could strand investments in emission-reducing technologies).

Consider the following example:

A sector is required to reduce its emissions 10% over a five-year commitment period using either a CERT or an equivalent cap. At the start of the period, the sector emits 1,000 Mt of CO₂ per year, and it is expected that under business-as-usual (BAU) it will continue to emit at this rate, emitting 5,000 Mt during the course of the five-year period. Thus, if it operates under a 10% CERT, the sector is expected to reduce its emissions 500 Mt during the period. If it operates under a cap, 4,500 allowances will be auctioned or allocated to the sector for the period. The economy is surprisingly robust, however, driving the sector's BAU emissions up 12% during the period, to 5,600 Mt. If the sector is operating under the CERT, it will have to reduce 560 Mt, 60 more than expected. If it is operating under the cap, it will have to reduce 1,100 Mt, 600 more than expected. Conversely, if BAU emissions drop 12% during the period due to a weak economy, to 4,400 Mt, the CERT would require the sector to reduce 440 Mt, 60 less than expected. Under a 4,500 Mt cap, a 12% drop in BAU emissions would require the sector to make no reductions at all, and, depending upon the design of the trading system, might enable it to sell or bank 100 Mt.

Thus, given a 24% range of uncertainty ($\pm 12\%$) in BAU emissions, uncertainty about reductions is also 24% (500 Mt \pm 60 Mt) under the CERT, but it could be as much as 240% (500 Mt \pm 600 Mt) under the cap.

As targets under CERTs get higher in successive commitment periods, the range of uncertainty about effort and cost may rise accordingly (although still significantly less than under a fixed target system), but in the crucial early years, businesses will have much greater certainty about what they need to do.

C. *Certainty of Sustained Action*

Related to the fact that CERTs provide certainty of effort is that CERTs provide certainty that there *will be* effort. CERTs require companies with targets to take action in *all cases*, regardless of unexpected events. As is clear in the above example, if unforeseen growth causes emissions to increase beyond expectations, CERTs require a moderate increase in reductions, though not as much as under a system based on a fixed level of emissions. If events unexpectedly drive emissions down, CERTs ensure that the quantity of reductions needed is reduced but not eliminated, as may occur under a fixed target.

Similarly, CERTs provide certainty that *all* covered emitters will have to take some action to achieve or acquire emission reductions. In contrast, performance standards, which are currently being considered by the EPA as a tool for reducing GHG emissions from power plants, would require no additional effort from companies whose fleets already emit less than the standard allows.

This focus on promoting *sustained action* by all covered emitters to achieve GHG reductions can, in turn, foster corporate familiarity with emission reduction possibilities and promote continued learning. It can also help ensure that the demand for and price of reductions remain relatively

stable, providing companies that manufacture and sell emissions reduction technologies with greater certainty that their products will have a steady, reliable market.⁴

D. Strong Environmental Outcomes

CERTs could lead to environmental outcomes as strong as or stronger than would be feasible with other approaches. During a given commitment period, emissions under a CERT could be higher or lower than under a fixed target, but over the long term CERTs are equally likely to reduce emissions to desired levels. Because climate change is primarily a "stock" problem (it is caused by the amount of GHGs in the atmosphere rather than the rate of emissions), small variations in emissions from period to period would not significantly alter the outcome. Of course, as with a fixed target, the level of reductions achieved by a CERT depends on the stringency of the target, which can be adjusted from one commitment period to the next to account for new information.

For a couple of reasons, it is possible that CERTs would actually achieve a better environmental outcome than a cap or a tax. First, a cap focuses on achieving a steady, predictable decline in emissions, regardless of what actually causes that decline. In contrast, CERTs focus on achieving steady, predictable *actions* to reduce emissions, which, as just noted, can reassure clean energy investors and manufacturers that there will be a reliable demand and price for their technologies. This sustained action by companies, investors, and manufacturers can, in turn, create the potential for snowballing momentum to produce even higher levels of emission reductions. Second, as with any business expense, there is a limit to what companies can spend on reducing their emissions. By lowering the cost for companies, CERTs make it possible for them to achieve higher levels of reductions than they could achieve under a cap or a tax.

E. Other Benefits

In addition to the benefits described above, there may be other reasons to adopt CERTs (besides the obvious one, that Congress has so far rejected the alternatives). These possible benefits include:

- *Transparency:* CERTs could increase transparency by placing attention not only on the policy outcome – the level or intensity of emissions – but also on the actions that led to the outcome. Over time, this could facilitate better understanding of which methods tend to succeed or fail. In contrast, an emissions target can be met simply by showing that emissions during the commitment period did not exceed the allowed amount.
- *Flexibility:* Because it is difficult to foresee with sufficient clarity how hard or easy it will be to meet a fixed target, a number of methods have been introduced to relax or tighten a cap if it becomes necessary.⁵ CERTs provide built-in flexibility, so it should never be necessary to tighten or relax the target in response to short-term economic change (though, as noted, the targets can certainly be adjusted from one commitment period to the next, as new information comes to light). Placing the focus on reductions will ensure that, no matter how the economy unfolds, reductions will continue to be made at a steady, predictable pace.
- *Simplicity:* Caps and taxes require decision-makers to distribute costs and revenues, which can make negotiations very complex. Allowances can be allocated, in which case

⁴ Unpredictable demand for reduction technology has been a major problem with the EU Emissions Trading System. A weak economy and other factors have created a surfeit of allowances, destabilizing prices.

⁵ "Borrowing and banking" allow companies to borrow allowances from or save them for future commitment periods; "price collars" set minimum and maximum prices for auctioned allowances; "reserves and set-asides" allow regulators to withhold allowances from sale.

companies may receive a windfall, or they can be auctioned, in which case companies initially bear the cost but may be able to pass it on to customers. Auctions, like taxes, produce revenue that the government must distribute, which can lead to political wrangling and even gridlock. A CERT system involves no allowances or revenue, so distributive questions are largely avoided, simplifying negotiations.

V. CONCLUSION

Climate emission reduction targets – CERTs – are a promising policy approach that could provide a low-cost, high-certainty way to achieve significant emission reductions. CERTs would substantially reduce the cost to businesses and consumers of achieving a given level of reductions; provide a high degree of certainty about the level of effort needed to achieve those reductions; require businesses to maintain a sustained course of action (which would create a more stable market for reductions); provide transparency and flexibility; simplify negotiations; and, most importantly, promote strong environmental outcomes. The many potential benefits of CERTs warrant their further consideration and exploration.