

# Western Climate Initiative



## Offset Limit Recommendation Paper

### CSAD Task 5 Committee Recommendation to Partners

October 6, 2009

---

#### Table of Contents

<b>1</b>	<b>Background and Purpose .....</b>	<b>1</b>
<b>2</b>	<b>Offset Limits in Other Trading Schemes .....</b>	<b>3</b>
<b>3</b>	<b>Principles in Evaluating Offset Limit Options .....</b>	<b>5</b>
<b>4</b>	<b>Options.....</b>	<b>6</b>
4.1	Options for Implementing the Limit across Jurisdictions .....	6
4.2	Options for Applying the Offset Limit over Time.....	11
<b>5</b>	<b>Stakeholder Feedback on Options .....</b>	<b>16</b>
<b>6</b>	<b>Recommendation .....</b>	<b>17</b>
<b>Annex 1:</b>	<b>Detailed Description of Offset Limits in Other Trading Schemes .....</b>	<b>20</b>
	Regional Greenhouse Gas Initiative (RGGI) .....	20
	European Union Emission Trading Scheme .....	21
	Limits proposed in US National Cap-and-Trade Legislation .....	23
<b>Annex 2:</b>	<b>Illustration of a Region-Wide “Carry-Over” mechanism .....</b>	<b>28</b>

# 1 Background and Purpose

As part of the design for the WCI Regional Cap-and-Trade Program, the WCI Partner jurisdictions recommended that a rigorous offset system be developed and implemented. The purpose of the offset system is to reduce compliance costs while encouraging emission reductions, innovation, and technology development for sources and sinks not covered by the cap-and-trade program.

Offsets are GHG emission reductions, GHG emissions avoided, or GHG removals from the atmosphere, measured in metric tons of CO<sub>2</sub>e. Offsets are achieved through activities that are often referred to as “offset projects.” Offset credits (also measured in metric tons of CO<sub>2</sub>e) are issued for offsets that are achieved by offset projects that meet certain criteria. Offset credits can be traded and can be used for compliance purposes or as part of voluntary actions. When used within a cap-and-trade program, offset credits used for compliance purposes come from emission sources or sinks not covered by the cap.

The Design Recommendations for the WCI Regional Cap-and-Trade Program specify that a majority of emission reductions required under the program occur at covered entities and facilities. Consequently, for compliance purposes, the WCI Partner jurisdictions set a limit on the use of offset credits issued by WCI Partner jurisdictions, as well as the use of offset credits and allowances from other GHG emission trading systems that are recognized by the WCI Partner jurisdictions, to no more than 49 percent of the total emission reductions from 2012 to 2020.<sup>1</sup> This limit and rationale are established in the WCI’s Design Recommendations (September 23, 2008). This paper addresses how this limit could be implemented, rather than discussing the limit itself.

The offset limit is conceptually illustrated in Figure 1. The bar is comprised of three pieces. The bottom part of the bar is the total number of emission allowances issued from 2012 to 2020, a direct reflection of the emissions cap. The top two pieces combined equal the total emission reductions required of

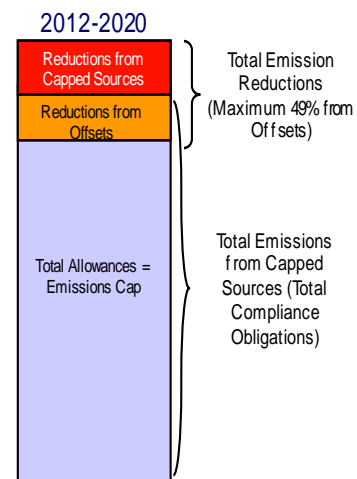


Figure 1. Illustration of the WCI Offset Limit

<sup>1</sup> It is important to note that while we refer to the “offset limit” throughout this paper, it should be understood to encompass not only offsets issued by WCI Partner jurisdictions, but also offsets and allowances issued by other GHG emission trading systems approved for use in the system by the WCI Partner jurisdictions.

the covered entities and facilities for the period 2012 to 2020. The total required emission reductions are divided into two parts: the top part is the total emission reduction achieved at the covered entities and facilities; the second part is the total emission reduction that was achieved through offsets or allowances from other GHG emission trading systems. As specified in the program design recommendations, this second part, the offsets and allowances from other systems, can be no more than 49 percent of total emission reductions.

On May 19, 2009, the WCI Cap Setting and Allowance Distribution (CSAD) Committee issued a white paper describing options to address the following questions related to implementation of the WCI offset limit:

1. What mechanism should be used to impose the limit?
2. How should the offset limit be applied across jurisdictions?
3. How should the limit be applied across compliance periods?

On May 28, 2009, the CSAD Committee held an in-person stakeholder event in Seattle to present the options paper and solicit feedback, and since then, has received numerous written comments. On the basis of this input and further deliberations, the Committee has developed a recommendation on how to implement the offset limit, as presented in Section 6.

The purpose of this recommendation paper is to seek stakeholders' input on the committee's recommendations prior to a final WCI decision. As outlined and explained below, the committee's recommendations include:

- limiting the use of offsets rather than limiting the supply
- implementing a common use limit across WCI Partner jurisdictions
- setting the limit at an equal percentage of compliance obligations across compliance periods; and
- implementing a region-wide "carry-over" approach, which should be construed narrowly, applying only to the specific circumstances of the WCI program design .

## 2 Offset Limits in Other Trading Schemes

The CSAD Committee reviewed other existing or proposed cap-and-trade programs limit offsets in order to identify options for implementing the offset limit and the implications of these options. In our review, we considered the following programs and federal proposals:

- Regional Greenhouse Gas Initiative
- European Union Emissions Trading Scheme
- The American Clean Energy and Security Act of 2009 – ACESA
- Dingell-Boucher Discussion Draft
- Boxer substitute of Lieberman-Warner (S. 3036)
- Lieberman-Warner Climate Security Act (S.2191)
- US Climate Action Partnership Proposal

Table 1 summarizes how offset limits were designed or proposed in these programs and proposals. As illustrated in Table 1, there is wide variation in how the limits would be applied and how the availability of offsets changes over time. More detailed descriptions of these offset programs and proposals can be found in the Annex to this paper.

**Table 1. Summary of Offset Limit Provisions of Cap-and-Trade Systems and Proposals**

Cap-and-trade program or proposed legislation	Overall limit description and mechanism of application	Difference in limit across jurisdictions	Change in limit over time
<b>US Regional</b>			
<b>Regional GHG Initiative (RGGI)</b>	3.3% of a covered entity's emissions (in order to contain allowance price, overall offset limit increases as the allowance price exceeds threshold levels)	No difference	No change in % over time (unless price triggers increase limit). Absolute amount of allowable offsets decreases as the number of allowances available decreases.
<b>European Union</b>			
<b>EU Emissions Trading System (EU ETS)</b>	No more than 50% of emission reductions, EU-wide, typically implemented by member states as a percentage of covered entities' emissions (e.g., as a percentage of allowances distributed).	Phase II (2008-2012): Varies across member states from 0% to 20% of allowances distributed	Phase II (2008-2012): Based on National Allocation Plans (NAPs) Phase III (2013-2020): NAPs replaced by EU-wide caps and allocation rules.
<b>US National Legislation and Proposals</b>			
<b>The American Clean Energy and Security Act of 2009 – ACESA</b>	~2 billion metric tons per year. Implemented as a fraction of covered entity's emissions (compliance obligation) that increases from ~30% in 2012 to ~60% by 2050 as cap declines.	Not applicable (single jurisdiction)	Allowed offsets increase as a fraction of allowances issued over time.
<b>Dingell-Boucher Discussion Bill</b>	5-35% of a covered entity's emissions		Increasing percentage over time from 5% starting in 2013 to 35% by 2025.
<b>Boxer Substitute of Lieberman-Warner (S. 3036)</b>	Up to 15% of total emission allowances issued per year		No change in % over time. Absolute amount of allowable offsets decreases with cap. Includes a roll-over for unissued allowances for use in subsequent years.
<b>Lieberman-Warner Climate Security Act (S. 2191)</b>	Up to 15% of a covered entity's emissions		No change in % over time. Absolute amount of allowable offsets decreases with cap.
<b>US Climate Action Partnership Proposal (US CAP)<sup>2</sup></b>	2 billion metric tons per year. A Carbon Market Board would have authority to increase limit to 3 billion metric tons.		No major change in absolute amount of offsets allowed.

<sup>2</sup> USCAP Blueprint for Legislative Action: Consensus Recommendations for U.S. Climate Protection Legislation, January, 2009. USCAP is "an expanding alliance of major businesses and leading climate and environmental groups that have come together to call on the federal government to enact legislation requiring significant reductions of greenhouse gas emissions." <http://www.us-cap.org/about/index.asp>

### 3 Principles in Evaluating Offset Limit Options

The CSAD committee applied the following principles in defining the design and operation of an offset limit:

- **Fairness:** An offset limit should be designed to apply fairly to covered entities and not create competitiveness concerns. An offset limit should be implemented in a manner that provides fair access to offset markets for offset project developers and covered entities, as well as other market participants.
- **Economic efficiency:** An offset limit should be implemented so that the market operates efficiently and that greenhouse gas emission reductions can be achieved at the least cost. An offset limit should not unduly inhibit the realization of the least-cost offsets.
- **Cost Containment:** The offset limit should be implemented in a manner that helps to contain compliance costs and maintains offset fungibility across the WCI. Recognizing that offset supply is essential for achieving cost containment, the offset limit should not unduly restrict the ability of offset project proponents to finance and develop prospective projects, the ability of jurisdictions to issue, or market participants to acquire, offsets in a timely manner.
- **Effectiveness and enforceability:** The offset limit should be implemented to ensure that the limit is enforceable and is effective at achieving the WCI goal that offsets are supplemental to emission reductions at covered sources, and thus that no more than 49% of total emissions reductions 2012-2020 are achieved by the use of offsets (and allowances and offsets from other emission trading systems).
- **Administrative simplicity and cost:** Implementation of the limit should provide as clear a path forward as possible for all parties, including administrative bodies, offset project developers, and covered entities. Administrative costs and transaction costs should be minimized for all parties, consistent with the need to ensure effective limit compliance.

## 4 Options

While the WCI design document specifies a limit on the amount of offsets that may be used for compliance purposes in the WCI regional cap-and-trade program, it does not indicate:

- What offset limit mechanism to implement and how to apply it across WCI Partner jurisdictions, or,
- How to apply the offset limit over time (across the three compliance periods).

These questions are addressed below.

### 4.1 Options for Implementing the Limit across Jurisdictions

The question of jurisdictional limits is unique to multi-jurisdictional emission trading programs, such as RGGI, the EU ETS and WCI.

There are two approaches Partners could employ to limit the total amount of offsets used. They could either limit the *use* of offsets (e.g., the number of offset credits a covered entity can use for compliance) or they could limit the *supply* of offsets (e.g., the total number of offset credits available to use for compliance). Within these two categories many detailed mechanisms are conceivable.

This paper will consider four detailed mechanisms - three that we categorize as usage limits:

- ‘percentage limits’ based on total compliance obligations, i.e. on actual emissions;
- ‘percentage limits’ based on freely distributed allowances;
- ‘offset surrender certificates’,

and one as a supply limit:

- ‘first-come, first-issued’.

For each of these approaches there are also two broad options for addressing offset limits across jurisdictions - a *common* or a *differentiated* approach - and also multiple ways in which the limits could change over time.

#### Limiting the *use* of offsets

The offset limit could be set as a *percentage use limit* at the individual entity with a compliance obligation. The limit could be applied on a *common* basis across all jurisdictions, whereby the same entity-based percentage limit would apply across jurisdictions to any WCI-covered entity. Under this option, a common entity-based offset use limit specified as a percent of compliance obligations would be applied across the WCI. This is the approach taken by RGGI. The common percentage use limit would be calculated by dividing the total offsets allowed by the sum of the

total number of allowances to be issued plus the total offsets allowed within a given time period (see section 4.2).

Alternatively, the WCI could adopt jurisdictionally *differentiated* percentage use limits, whereby the limit in each jurisdiction would differ based on one or more factors, such as the emission reductions below 2012 (or 2005) levels represented by a partner's emission goal. An example of the latter would be to apply the WCI-wide limit—no more than 49% of emission reductions between 2012-2020 from offsets—at the individual partner level. In such a case, jurisdictions with deeper targets relative to a base year level would allow proportionately more offset use per entity.

With a differentiated percentage-use approach, there is a risk that the total regional limit could be exceeded if the limit is specified as a percent of compliance obligations (i.e., total emissions, for which allowances and offsets have been surrendered). This risk occurs because allowances can be traded among jurisdictions, thus actual emissions that will occur in a given jurisdiction—and the corresponding amount of offsets—cannot be known in advance.<sup>3</sup>

---

<sup>3</sup> The following provides an example of how exceedance might occur under a differentiated percentage-use approach. Assume, for instance, a region with only two jurisdictions (K and L) and a total emissions goal of 95 tons for a specific compliance period. Assume also that 49% of region-wide emission reductions equals 5 tons, and thus the total amount of covered emissions in the region could not exceed 100 tons (with 95 tons in allowances plus 5 tons in offsets surrendered). Let's say that jurisdiction K has a emissions cap of 46 tons, and that 49% of emission reductions in jurisdiction K equals 4 tons. Jurisdiction L, in contrast has an emissions cap of 49 tons, and 49% of emission reductions equals only 1 ton. Therefore, jurisdiction K would set an offset percentage use rate of 8%  $((4/(46+4))*100)$ , while jurisdiction L would set an offset percentage use rate of 2%  $((1/(49+1))*100)$ .

If offsets were fully used in each jurisdiction, and neither jurisdiction was a net buyer of allowances from the other, then the region-wide offset limit would be respected  $(0.08*50 + 0.02*50 = 5$  tons). However, if entities in jurisdiction K were to buy more allowances from jurisdiction L than they sold to it, *and* if all entities fully used the amount of offsets allowed under its jurisdictional limit, then the overall region-wide offset limit would be exceeded. For example, assume that entities in jurisdiction K were to acquire a net 14 tons of allowances from jurisdiction L:

- Jurisdiction K entities could then surrender 60 tons of allowances (46+14). The offset use ratio is set at 0.08, also equal to  $x/(60 + x)$  where x is the amount of offsets that can be claimed along with 60 tons of allowances so that the offset use ratio is still 0.08. Re-arranging so that x appears only on the left hand side of the equation, we get  $x = 0.08*60/(1-0.08) = 5.2$  tons of offsets to cover total emissions of 65.2 tons, and
- Jurisdiction L entities could then surrender 35 tons of allowances (49-14). The offset use ratio is set at 0.02, also equal to  $y/(35 + y)$  where x is the amount of offsets that can be claimed along with 35 tons of allowances so that the offset use ratio is still 0.02. Re-arranging so that y appears only on the left hand side of the equation, we get  $y = 0.02*35/(1-0.02) = 0.7$  tons of offsets) to cover total emissions of 35.7 tons.

Total offsets used would then total 5.9 tons (5.2+0.7), greater than the region-wide offset limit of 5 tons.



An alternative would be to specify the offset limit as a percent of the number of allowances that are distributed directly to covered entities within a given Partner jurisdiction. This way, the risk of exceedance would be avoided, since the number of free allowances and corresponding number of allowable offsets would be specified in advance.<sup>4</sup> This approach would provide access to offset use only to covered entities that receive allowances directly (and in some proportion to allowances received).

The EU has, thus far, largely taken a differentiated percentage use approach to offset use limits.<sup>5</sup> As noted in the Annex, in Phase II of the EU ETS each member state was allowed to propose an offset limit as part of its National Allocation Plan. These plans are then subject to EU review and approval. As a result, the fraction of compliance obligations that emitters can fulfill using offsets varies from country to country.

The choice between common and differentiated percentage approaches to jurisdictional limits has implications in terms of how offset opportunities and risks are distributed across partners. This comparison is summarized in Table 2.

---

<sup>4</sup> As illustrated in the prior footnote, the reason that the offset limit could be exceeded under a differentiated percentage-use approach is that, while the offset limit percentages are fixed at the outset of a compliance period, the total compliance obligations (i.e. emissions) in each jurisdiction to which they apply will be unknown until the compliance periods ends. If instead the ability to use offsets were applied to the number of allowances that were distributed (a known quantity at the outset) rather than to the number of allowances and offsets surrendered (unknown until the end of the compliance period), the absolute amount of offsets that each entity could use would be known and fixed, and the potential for overage would be avoided.

<sup>5</sup> The EU percentage use limit is specified as the percent of allowance received for free by any given regulated emitter rather than as a percentage of compliance obligations.

**Table 2. Comparison of Jurisdictional Percentage Use Offset Limit Options and Implications**

Option:	Common % Use	Differentiated % Use
<b>Example</b>	X% of compliance obligations in all jurisdictions	49% of emission reductions in each jurisdiction translated to different percentages of compliance obligations in each jurisdiction
<b>Fairness</b>	Covered entities can use the same percentage of offset across the WCI region. Entities that emit more GHGs could use more offset credits for compliance.	Emitters from jurisdictions that have a deeper reduction goal for 2020 relative to a base year would be allowed a higher percentage of offsets. Within a given jurisdiction, entities that emit more GHGs could use more offset credits for compliance. If the limit is based on allowance distribution (rather than % of compliance obligation), then entities receiving more free allowances would have greater access to offsets.
<b>Efficiency</b>	To the extent that offset use falls short of the overall limit as a result of the mechanism used to implement the offset limit, opportunities for efficiency gains may be unrealized. The relative efficiency impact of each option remains to be evaluated.	
<b>Cost Containment</b>	The relative cost containment impact of each option remains to be evaluated.	
<b>Effectiveness and Enforceability</b>	WCI region-wide limit met. Individual partner limits may not be met.	WCI region-wide limit could be exceeded if individual Partners' limits are specified as a percent of compliance obligations.
<b>Administrative Simplicity</b>	Administratively simple to implement.	Slightly more complex to implement than the common % use approach.

As an alternative to the percentage use limit, the WCI Partner jurisdictions could choose to employ a usage limit which we will refer to as the *offset surrender certificates* mechanism. In this approach, the WCI Partner jurisdictions would issue and distribute (auction, sell or give for free) a number of certificates equal to the offset limit in tons. Covered entities would have to surrender one certificate for each offset credit they desire to use for compliance.

Under this mechanism, individual entities need not be limited by a percentage limit on their use of offsets. This approach could simplify the implementation of limits differentiated at the jurisdictional level and ensure that any regional limit on offsets would be maintained. This mechanism would also increase the likelihood that the full allowed amount of offsets (49% of emission reductions) would be used; under a percentage use limit, all entities not in need of offsets may need to engage in allowance-to-offset arbitrage in order to make the full amount of offsets available.<sup>6</sup>

---

<sup>6</sup> Assuming that offset credits are available for less than allowance prices, under a percent use approach an arbitrage opportunity could arise. If an individual entity does not need to use the maximum amount of offsets allowed (perhaps due to a generous free allocation of allowances), this entity would have the opportunity to acquire offsets (not needed for its own compliance purposes) up to the percentage limit and free up allowances to trade to others. However, there is no guarantee that this action would be taken by all market participants. If this

In contrast to limits on supply (see below), the offset surrender certificate approach would not inhibit the creation of offset projects or issuance of credits. However, the surrender certificate approach creates an additional market of compliance instruments which would be accompanied by increases in complexity, transaction costs, and associated concerns related to topics such as market manipulation.

### **Limiting the *supply* of offsets**

Another option is to limit the supply of offset credits. Under a common supply limit, the same pool of offset credits would be available to any covered entity in the WCI region. Under a differentiated supply limit, each Partner would have its own pool of offset credits and those offset credits could either be restricted to their covered entities or could be available for any covered entities throughout the WCI Partner jurisdictions.

Conceptually, a supply limit approach would simplify the implementation of jurisdictional differentiated limits. However, limiting the issuance of offset credits especially through a *first-come, first-issued*, mechanism could create significant uncertainty for offset project developers. There is also no guarantee that the lowest cost projects would be the first to enter the market. Furthermore, a supply limit may hamper a regulated entity's ability to ensure that an offset supplier can deliver in a specific year (due to first come, first serve basis).

Similar to the surrender certificate approach described above, individual entities need not have a percentage limit on the number of offsets used for compliance and a supply limit would ensure that no amount of offsets available under the limit would be left on the table due to the lack of allowance-to-offset arbitrage by individual entities. Unlike all of the use approaches described above, a supply limit would allow individual entities to treat offset credits and allowances as perfect substitutes.

---

opportunity was not acted on by all entities, some offsets could be "left on the table" from a system-wide viewpoint.

## 4.2 Options for Applying the Offset Limit over Time

The offset limit could be set at a common level across all three compliance periods or it could be designed to vary over time. Some stakeholders have argued for more offsets in early years in case rapid reductions prove difficult to implement. It has also been suggested that offsets may be more valuable in early years as emerging low-GHG technologies mature and their costs decline. Other stakeholders have argued for greater offsets in later years to provide cost containment as emission caps are tightened and allowance prices might be expected to rise. Another rationale for greater offset availability in later years is that offsets could be more abundant and reliable as offset markets and rules mature over time.

There are several options for addressing variation in time, including, but not limited to, the following:

- **Equal absolute number of offsets in each compliance period:** This is the approach embodied in the US CAP proposal and conceptually in the American Clean Energy and Security Act of 2009 (ACESA) formula described in Table 1.
- **Equal percent of use across compliance periods.** This approach is used by RGGI and was proposed in the Lieberman-Warner Bill (S.2191). While the fraction of emissions that could be covered by offsets would remain constant, the absolute amount of offsets that could be used would decline if and as the number of available allowances declines over time.<sup>7</sup>
- **49% of Emission Reductions in each period.** This option would impose a different absolute or percent offset limit for each compliance period in order to ensure that no more than 49% of emission reductions are in the form of offsets in each period. Since the cap declines over time (for a given scope of covered sources), the amount of emission reductions increases over time as the cap declines, as would the amount of offsets available.<sup>8</sup>
- **No restrictions across compliance periods:** This approach would provide the most flexibility by imposing no restrictions across compliance periods. The total amount of offset credits that can be used under the limit could be available for use in any compliance period. Entities with compliance obligations would decide when they want to use offset credits, so that the distribution of offset credit use over time would be determined by the market as a whole. This option could be implemented using a supply

---

<sup>7</sup> In the case of the WCI, the introduction of transportation, residential, and commercial fuels leads to an increase in the emissions cap in 2015, and the absolute amount of allowable offsets would increase significantly from the first (2012-2014) to the second (2015-2017) compliance period.

<sup>8</sup> The increase in the 2015-2017 will be even greater due to the introduction of transportation, residential, and commercial fuels in 2015.

limit, a certificate surrender mechanism, or by an offset use limit expressed in tons rather than % use (e.g. if offset use were linked with allowance distribution). However, it would be incompatible with a straight percentage use limit.

- **Other Ramp Up or Ramp Down:** There are other options for specifying increases or decreases in the amount of allowable offsets over time. For example, the Dingell-Boucher draft discussion bill provided a schedule for increasing the percentage of offsets that could be used over time (see Table 1).
- **Carry-over:** Any unused or unissued offsets (under the limit) could carry over to next compliance period and be added to that period's offset limit. This approach, included in the Boxer amendment (S.3036) for adjusting an issuance limit and in EU Phase III directive on a compliance entity-specific basis<sup>9</sup>, could be implemented in conjunction with the options above.

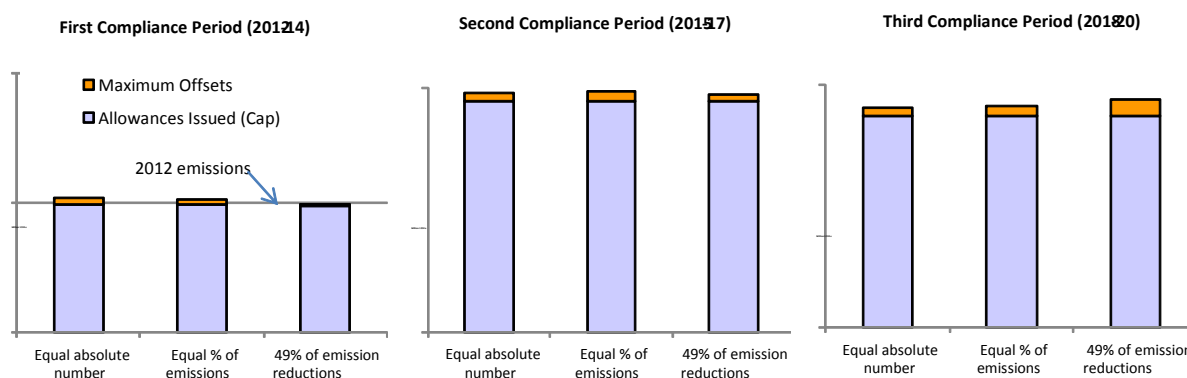
A carry-over provision could increase the ability to fully use the total amount of offsets allowed across all three compliance periods (2012 to 2020), especially in the case that offsets are not available in early compliance periods in sufficient quantity at costs competitive with allowances. The banking of allowances also increases the flexibility in the timing of offset use, by enabling entities to acquire and retire more offsets in early periods than they might otherwise need, and as a result, carry forward banked allowances to the subsequent compliance periods (see footnote 6). Allowance banking increases offset use flexibility in the particular case that offsets are abundant and lower cost compliance options in early compliance periods,

Figure 2 provides a visual comparison of the differences in offsets over time among the first three temporal options listed above, relative to the overall emissions budgets for the three compliance periods. It assumes full offset use (up to the limit in each compliance period) and no carry-over). Offset limit options are grouped by compliance period in order to compare them more easily within each period.

---

<sup>9</sup> To the extent that covered entities do not use their full allowable amount of offsets in Phase II (2008-12), they would be able to use these remaining amounts in Phase III (2012-2020). "In order to provide predictability, operators should be provided with certainty about the possibility to use after 2012 CERs and ERUs up to the remainder of the level which they were allowed to use in the period from 2008 to 2012..." L 140/67, May 6, 2009, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0063:0087:EN:PDF>

**Figure 2. Illustration of offset limit options across compliance periods (grouped by compliance period)**



*(The higher bars in the 2<sup>nd</sup> and 3<sup>rd</sup> compliance periods reflect the expansion of program scope in 2015. All figures shown are illustrative)*

Figure 3 has two panels. The upper panel shows the same data as Figure 2, but grouped by offset option in order to illustrate how maximum offset use varies for each option across compliance periods. The lower panel zooms in on the maximum offset amounts. (The charts are illustrative only, since the cap has yet to be established.) As shown, the equal absolute amount and equal percentage limit options allow greater offset availability in early periods. As illustrated in Figure 2, these options would allow emissions to exceed 2012 levels in the first compliance period.

**Figure 3. Illustration of offset limit options across compliance periods (grouped by offset option)**

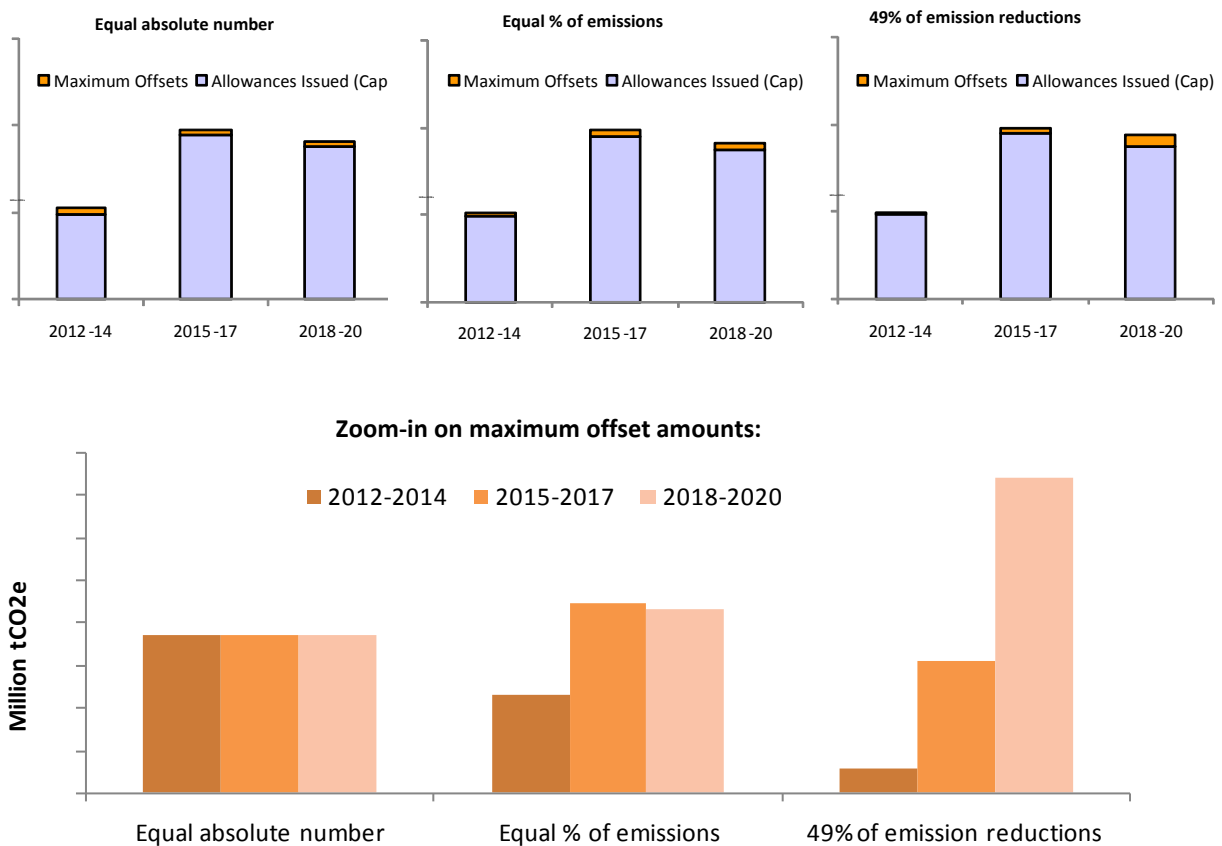


Table 3 compares each of the three options depicted above in terms of the principles listed in Section 3. In terms of fairness, the differences are a matter of perspective: the first two approaches would make more offsets available to covered sources that enter the program in 2012, whereas the third approach shown (49% of emission reductions in each period) would distribute offset availability in accordance with the extent of emission reductions needed (more in last period when deeper reductions are required). With respect to cost containment, as described in the table, the optimal approach will depend on future allowance prices. In terms of effectiveness, each of the first two options (equal absolute number and equal % of emissions) would allow more than 49% of emission reductions to come from offsets during the first two compliance periods, and much less in the third period. While this outcome could be avoided by setting the limit at 49% of emission reductions in each period (the third option), depending on how the limit is implemented (see previous section) this option could enable total emission reductions met by offsets to exceed 49% under the percentage use limit.

While all options shown in the table should be similar in terms of enforceability and administrative simplicity and cost, the carry-over approach noted above might require added administrative effort in the case of the percentage use mechanism, and create could some

added uncertainty for the offset market. Data on the total amount of offsets used during a prior compliance period would be needed prior to setting the offset limit for the current period, and this information might not be fully available for several months into the period. Either a supply limit or the surrender certificate mechanism could address concerns about carry-over of excess offset capacity between compliance periods in a more straightforward way.

**Table 3. Comparison of options for limiting offsets across compliance periods**

<b>Option→</b>	<b>Equal absolute number of offsets in each period</b>	<b>Equal % of emissions in each period</b>	<b>49% of emission reductions in each period</b>
<b>↓ Principle</b>			
<b>Fairness</b>	Would make more offsets available to entities covered in the first compliance period (relative to other options)	Would make more offsets available to entities covered in first compliance period, but less so than the “equal absolute” option	Would make offsets available to covered entities in accordance with the extent of emission reductions required in a given period.
<b>Economic Efficiency</b>	Any proscription of offset use by compliance period has the potential to lead to unrealized efficiency gains.		
<b>Cost Containment</b>	Might provide greater cost containment if internal emission reductions turn out to be more costly in the early period (s).		Might provide greater cost containment if internal emission reductions turn out to be more costly in the final period.
<b>Effectiveness and Enforceability</b>	Would meet WCI 49% limit across all periods, but could exceed it in first and second compliance periods if sufficient offsets are available and are extensively used.		Could exceed overall 49% limit (across 2012-2020) under the percentage use limit, if allowances are banked in early periods and used in later periods when the percentage of allowed offsets is higher. Exceedance could be avoided through a supply limit or surrender certificate approach or linking offset use to allowance distribution (see Section 4).
<b>Administrative Simplicity and Cost</b>	No significant difference among options		

If a supply limit or surrender certificate use limit is chosen instead of a percentage use limit (see Section 4), then the options for spreading offset availability across compliance periods could be set by how certificates are distributed or offsets issued in each period. As noted above, these options could more easily allow for the full targeted amount of offsets to be available across all three periods.



## 5 Stakeholder Feedback on Options

The CSAD Committee has received considerable feedback on the Offset Limit White Paper. The Committee hosted a stakeholder workshop in Seattle, Washington on May 28<sup>th</sup>, 2009, and received written comments from approximately twenty stakeholders during the public consultation period. Stakeholders providing input have included industry associations, environmental NGOs, electric utilities, power industry representatives, financial institutions, carbon market participants, and individual firms in the cement, aluminum, forest product, and petroleum industries. This section summarizes this input.

Several stakeholders remarked on the overall stringency or desirability of the offset limit. The limit itself has already been established by WCI, and is not the focus of this paper; no further discussion is provided here.

On the question of the mechanism used to impose the limit, stakeholders generally indicated a preference for limiting the use rather than the supply of offsets, and for reflecting this limit as a percentage of an entity's compliance obligations. Common reasons for this preference included predictability and flexibility for covered entities, concern that the least costly or promising offsets would be those in line to get approval, and concern that a supply limit would result in higher prices than a usage limit. Some of them supported a supply limit, as it would not constrain facilities to a specific usage limit.

Few stakeholders expressed their support for the use of offset surrender certificates, due to the potential to increase offset fungibility across compliance periods and to maximize the number of offsets allowed in the system. However, many of them objected to this approach, citing the potential for reduced cost containment (due to the added costs to compliance entities of acquiring certificates), added complexity, and the potential for market manipulation.

On the question of how the offset limit should be applied across jurisdictions, stakeholders were split in preference between common and differentiated limits. Many favored a differentiation of limits among jurisdictions, on the grounds that it would provide jurisdictions with greater flexibility or provide entities with more access to offsets where tighter emission reduction targets have been adopted. Many also argued for a common percentage use limit, in order to create harmonization among jurisdictions and equal access to offsets by all market participants.

On the question of how the limit should be applied across compliance periods, stakeholders presented a range of opinions, from "fixed and uniform over time" to an equal absolute

amount to front-loading with a higher percentage of use in earlier periods. Many stakeholders expressed a desire to have no restrictions across compliance periods. However, as noted above (Section 4), complete flexibility among compliance periods would require that a supply limit, the use of offset certificates, or another form of distributing the “right” to use offsets, such as on the basis of allowance distribution. As noted above, stakeholder support for offset surrender certificates or for a supply limited was relatively limited. On the question of whether access to offsets should be linked with the distribution of allowances, all stakeholders who commented on this approach objected to it, suggesting there is no rationale for such a distribution.

Many stakeholders favored a “carry-over” of unused offsets from one compliance period to the next, as a means to provide flexibility across compliance periods and increase the overall utilization of offsets. One commenter suggested that a carry-over mechanism might be unnecessary, arguing that the market could ensure maximum utilization of offsets through the banking of allowances.

Finally, the Committee asked stakeholders to describe any specific competitiveness impacts the Committee should consider in evaluating options to apply the offset limit. Many of the suggestions here were made in reference to comments noted above, and ensuring that the approach to setting the limit does not result in higher prices, and makes offsets available during periods when other compliance options (internal reductions, allowance purchases) are more expensive.

## **6 Recommendation**

The Cap Setting and Allowance Committee offers the following recommendations for implementing the offset limit.

1. The Committee finds that limiting the use of offsets would be preferable to limiting the supply of offsets. Compared to a supply limit, a use limit should result in lower overall compliance costs for covered entities. Furthermore, the Committee recommends a use limit be applied at the entity level, more precisely as a percentage of compliance obligations (i.e. emissions). This option provides predictability for covered entities, is administratively simple to implement, and tends to minimize both administrative and compliance costs of the program relative to a supply limit.

2. The Committee recommends a common use limit be implemented across Partner jurisdictions. A common limit provides equal access to offsets to entities across the WCI cap-and-trade system, and helps to ensure that the overall limit would not be exceeded. (See Section 4 for a discussion of how this might occur with differentiated limits) With a common use limit, a jurisdiction could still adopt a limit lower than this level, an option established in the WCI design recommendations. The CSAD Task 3 (competitiveness) group will consider whether the common use limit might pose competitiveness concerns for entities in jurisdictions that have adopted lower emission targets relative to historical levels, and if so, how to address these concerns.
3. The Committee recommends that the limit be set at an equal percentage of compliance obligations across compliance periods. This option would allow for the use of a greater absolute number of offset credits in earlier compliance periods (adjusting for the expansion of program scope in 2015), thus easing the transition into the cap and trade program.
4. The Committee also recommends the implementation of region-wide “carry-over” approach. Under such an approach, if the total amount of offsets used across WCI in a given compliance period are less than the total amount of offsets allowed, then the difference in these two amounts would be added to the subsequent period’s offset limit (in absolute terms), with the percentage offset limit adjusted appropriately.<sup>10</sup> The committee recommends adopting a “region-wide”, rather than “entity-specific” carry-over approach due its simplicity, lower administrative cost, transparency, and ability to enable fuller overall use of offsets.<sup>11</sup>

Fundamental to this recommendation for a carry-over feature is the stringency of the limit on the use of offsets in the WCI program design. Under a program with more generous offset limit provisions, like the one proposed under the American Clean Energy Security Act (ACES), the carry-over feature could be counterproductive in its effect on long-term investment in emission reductions by covered sources. Of particular concern is that unused portions of an offset use limit could accumulate in early years to such an extent that covered sources could rely on offsets in later years to meet most or all required reductions. In the specific case of WCI, this outcome is not of concern, since the implementation of a carry-over will still result in over half of emission reductions occurring at covered sources. Consequently, this recommendation should be construed narrowly, applying only to the specific circumstances of the WCI program design.

---

<sup>10</sup> A numerical example of a carry-over system is presented in Annex 2.

<sup>11</sup> Under an entity-specific carry-over approach, entities that ceased or significantly reduce operations, and thus emissions, might not be able to use their “carried over” offset amount.

5. While there is some interest in adopting an offset surrender certificates approach, which would permit regulated entities to sell and buy (trade) the right to use offsets, the Committee does not recommend this approach. Compared to a percentage of compliance approach, the surrender certificate approach could be more administratively complex and may increase the overall compliance cost for some regulated entities.

In summary, the Committee recommends that Partners limit the use of offsets and that this limit be expressed as a percentage of compliance obligations at the entity level. The same percentage of compliance obligations should be applied across jurisdictions and compliance periods with a regional “carry-over” system that would permit the unused portion of the limit to be transferred to the following compliance period.

# Annex 1: Detailed Description of Offset Limits in Other Trading Schemes

## Regional Greenhouse Gas Initiative (RGGI)<sup>12</sup>

**Limits:** The Regional Greenhouse Gas Initiative (RGGI) allows entities to use carbon offsets to cover a portion of their compliance obligation. Entities can use offsets to cover up to 3.3% of their total compliance obligation. This limit increases to 5% if the carbon price is over \$7 per ton, and further increases to 10% if the allowance price exceeds \$10 per ton.

**Project Eligibility:** The RGGI Model Rule identifies five project types that are eligible for offsets:

- Landfill methane capture
- Sulfur hexafluoride (SF6) capture
- Forest sequestration
- Energy efficiency for natural gas, propane and heating oil
- Animal methane management

New project categories will be adopted if they are approved by each of the RGGI states.

In order to receive offset credit, emission reductions from these project types must be:

- Real and quantifiable
- Additional beyond business as usual assumptions
- Verifiable
- Permanent
- Enforceable

**Offset Limit Methodology:** In order to strike a balance between achieving real emission reductions in covered sectors and providing entities with a flexible compliance option, RGGI states decided that offset use should be limited to 50% of the total emission reduction amount. According to the Staff Working Group (SWG) analysis, the 50% goal was not viewed as a hard target, but rather as a guiding principle in determining a quantitative offset limit. The SWG recommended an entity level offset limit, rather than a state-wide or system-wide limit. The SWG modeled the impact of different offset limit amounts to determine an entity level limit that would approximate the 50% goal. The final SWG analysis recommended limiting offsets to

---

<sup>12</sup> Sources for this section include: Regional Greenhouse Gas Initiative Model Rule (12/31/08 final with corrections. ([www.rggi.org](http://www.rggi.org)); Analysis Supporting Offsets Limit Recommendation (5.1.06). ([www.rggi.org](http://www.rggi.org)); Offsets Summary: the Regional Greenhouse Gas Initiative. Environment Northeast ([http://www.env-ne.org/public/resources/pdf/ENE\\_RGGI\\_offset-design.pdf](http://www.env-ne.org/public/resources/pdf/ENE_RGGI_offset-design.pdf))

3.3% of an entities' total compliance obligation. This recommendation was adopted in the RGGI Model Rule.

The price trigger provision recognizes this modeling uncertainty by making the offset limit a function of the factors that drive price increases. Allowance price increases are partially a factor of the trajectory and the starting cap—allowing the offset limit to increase when the price increases serves as a means of correcting for inaccuracies in setting of these factors. This allows the offset limit to more closely align with the overall RGGI goal of controlling compliance costs.

## European Union Emission Trading Scheme

**Summary of Limits:** The European Union Emissions Trading Scheme (EU ETS) imposes limits on the amount of offset credits that may be used for compliance in both Phase II and III. These limits are percentage use limits applied at the facility level.

The actual limit is different in each phase, for each Member State, and may differ by type of installation. The Phase III limits are likely to be more stringent than the Phase II limits and may be harmonized across the EU; actual limits for Phase III are contingent on the results of international climate change negotiations.

### **Project Eligibility and Geographic Limitations:**

Phase II: The permissible offset credits in Phase II are certified emission reductions (CERs) from the clean development mechanism (CDM) and emission reduction units (ERUs) from joint implementation (JI) projects.<sup>13</sup>

Phase III: Limits on the use of CERs and ERUs in Phase III are contingent on the evolution of these programs as a result of international negotiations. The EU may also begin to explore other types of domestic offsets.<sup>14</sup>

### **Offset Limit Methodology:**

Phase II: In international climate negotiations it was decided that internal (domestic) abatement of emissions should take precedent over external participation in flexible

---

<sup>13</sup> For a list of approved CDM methodologies see:  
<http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html>

<sup>14</sup> See point 22 of the following document:  
<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/796&format=HTML&aged=0&language=EN&guiLanguage=en>

mechanisms such as the CDM and JI.<sup>15</sup> In the context of the Kyoto Protocol this concept is referred to as “supplementarity.”

The requirement to take significant action domestically was included in the international agreements partially at the behest of European nations. Therefore, the concept of prioritizing domestic action (from capped sources located in the EU) was included in the design of the EU ETS.

Each member state in the EU ETS has a different limit on the use of offsets credits from the international flexible mechanisms (CDM and JI credits) in the second phase of the EU ETS.<sup>16</sup> These limits are usually specified as a percentage of the total amount of allowances freely allocated to an installation.<sup>17</sup>

There is currently no EU-wide agreement on the definition of supplementarity. It is roughly interpreted that at least 50% of reductions (also referred to as the “level of effort”) should be met by direct reductions at covered facilities. However, in actual implementation it appears that the levels set for use of offsets in Phase II may allow for more than 50% of reductions to be met through offsets.<sup>18</sup>

Wide discretion was given to the Member States as limits on the use of CDM/JI credits were set in Phase II. The European Commission considered that, as a rule of thumb, installations should be allowed to use JI and CDM credits to supplement their allowance allocation by up to 10%.<sup>19</sup> However, each member state set the actual binding limit in its national allocation plan, which was then subject to approval by the Commission. Some approved limits were 20% and above.<sup>20</sup> In aggregate these limits would allow operators in the EU ETS to import approximately 1.4 billion metric tons of credits from 2008-2012.<sup>21</sup>

---

<sup>15</sup> See the Kyoto Protocol. Available from: <http://unfccc.int/resource/docs/convkp/kpeng.pdf>

<sup>16</sup> Phase II of the EU ETS runs from 2008-2012.

<sup>17</sup> For example, the United Kingdom limits on project credits in Phase II is 9.3% of allocation for large electricity producers and 8% of allocation for all other installations. See page 16 of the DEFRA’s *An Operator’s Guide to the EU Emissions Trading System* available from: <http://www.defra.gov.uk/environment/climatechange/trading/eu/pdf/events-guide.pdf>

<sup>18</sup> Some environmental groups estimate that between 88-100% of the emission reductions required under the combined cap for the EU ETS could theoretically take place outside of the EU through the use of offset credits. See for example, WWF, *Emission Impossible: access to JI/CDM credits in phase II of the EU Emissions Trading Scheme* June 2007. Available from: [http://assets.panda.org/downloads/emission\\_impossible\\_final\\_.pdf](http://assets.panda.org/downloads/emission_impossible_final_.pdf)

<sup>19</sup> European Commission. *Questions and Answers on Emissions Trading and National Allocation Plans from 2008 to 2012*. Page 4. Available from: [http://ec.europa.eu/environment/climat/pdf/m06\\_452\\_en.pdf](http://ec.europa.eu/environment/climat/pdf/m06_452_en.pdf)

<sup>20</sup> According to the WWF analysis, Ireland’s limit is 21.9%, Spain and Germany’s limit is 20%. See each country’s Phase II NAP for more details.

<sup>21</sup> The Carbon Trust (2008) *Cutting Carbon in Europe: The 2020 plans and the future of the EU ETS* Available from: <http://www.carbontrust.co.uk/publications/publicationdetail.htm?productid=CTC734>

**Phase III:** The EU has recognized that the level of offsets allowed in Phase II is likely to prevent achievement of the supplementarity goal and has proposed changes to prevent this in Phase III of the EU ETS. Beyond the supplementarity considerations, motivations for this increase in stringency are strategic in nature. The EU is attempting to use the EU ETS's influence on the demand for CERs as a tool in the international negotiations. The goal is to motivate large-emitting non-annex 1 countries (e.g., China) to increase action on climate change, including considering firm caps on emissions.

The rules for Phase III have recently been established as part of a comprehensive Climate and Energy Package.<sup>22, 23</sup> This package specifies that the level and type of offset credits allowed in Phase III is contingent on a successful implementation of an international agreement on climate change that will cover this period (post-2012). In the absence of an international agreement, the offset limit will be much tighter than in Phase II.

## Limits proposed in US National Cap-and-Trade Legislation

### Lieberman-Warner Climate Security Act (US Senate Bill 2191, 110<sup>th</sup> Congress)<sup>24</sup>

Senators Lieberman and Warner introduced the Climate Security Act, which was referred to the Environment and Public Works Committee, on October 18, 2007. Hearings were held to discuss the bill at the subcommittee and committee level in the fall of 2007.

**Summary of limits:** The Lieberman-Warner Climate Security Act stipulates that the owner or operator of a covered entity may meet up to 15% of their total compliance obligation using offset allowances. This percentage use limit is applied to each year or each compliance period. The limit does not change from year to year and there is no roll-over option for unused allowances to be used in future years or compliance periods.

**Offset limit methodology:** Covered entities may submit offset allowances that satisfy up to 15% of their total allowance submission requirement each year. These offsets must be generated in accordance with the bill—specifically the eligibility criteria and provisions in

---

<sup>22</sup> See: <http://www.euractiv.com/en/climate-change/mixed-reactions-parliament-approves-eu-climate-deal/article-178163>

<sup>23</sup> The revisions to the EU ETS in perpetration for Phase III were made as part of the climate and energy package proposed by the European Commission (EC), as accepted by the European Parliament on Dec. 17, 2008. See: <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-TA-2008-0610+0+DOC+XML+V0//EN&language=EN#BKMD-12>

<sup>24</sup> S.2191 bill <http://thomas.loc.gov/cgi-bin/query/z?c110:S.2191>



Subtitle D (the offsets section). This option may be provided as a means to contain cost while also creating an administratively simple offsets program.

## **Boxer Substitute of the Lieberman-Warner Climate Security Act (US Senate Bill 3036, 110<sup>th</sup> Congress)<sup>25</sup>**

The Boxer Substitute of Lieberman-Warner's Climate Security Act (S. 3036) was reported to the US Senate on May 20, 2008. The Boxer Substitute made considerable changes to the Climate Security Act in general and specifically the offsets provisions in the original bill. The Boxer Substitute was debated on the US Senate in the summer of 2008 and did not pass on the floor. The Boxer version shifted to an aggregate supply limit on total offsets allowed in the market, rather than a use based limit.

**Summary of limits:** The Boxer Substitute sets a supply limit on offsets allowed in the proposed cap-and-trade system. The supply limit would allow EPA to control the issuance of offset credits and cap the total supply to the cap-and-trade market. Language in the bill places an aggregate limit on how many offsets are available for purchase from three categories: domestic, international, and forestry offsets. The total supply limit for each of these categories is 30%: 15% domestic, 5% international, and 10% international forest offsets. The bill proposes the following:

- EPA limits the creation of **domestic offsets** to 15% of the total quantity of emission allowances issued in each year. The limit applies to the total number of offsets, not to an individual entity's compliance obligation.
  - Any unissued portion of the offsets for one year may be added to the 15% limit for the following year.
  - Offsets will be issued (at an appropriate discount rate determined by EPA) for each offset issued under RGGI.
- EPA limits the use of **international offsets** to 5% of the total quantity of emission allowances.
  - Any unused portion of international offsets may be added to the 5% limit for the following year.
  - International offsets from a project at a facility that competes directly with a US facility will not be allowed.
- EPA limits the use of **international forest offsets** to 10% of the total quantity of emission allowances for each year.

---

<sup>25</sup> S.3030 bill <http://thomas.loc.gov/cgi-bin/query/z?c110:S.3036>; ; Summary of S. 2191: Lieberman-Warner Climate Security Act of 2008 Manager's Substitute Amendment by the World Resources Institute. URL: [http://www.wri.org/publication/summary\\_lieberman\\_warner\\_climate\\_security\\_act\\_2008\\_substitute\\_managers\\_amendment](http://www.wri.org/publication/summary_lieberman_warner_climate_security_act_2008_substitute_managers_amendment)

- Forest offsets can be generated from reductions in deforestation and forest degradation as compared to caps or reference scenarios used by foreign countries.
- After enactment of the bill, EPA will periodically review the performance of the forestry offset program.
- Ten years after enactment, the EPA may discount offset credits from countries that have not reduced total emissions from forests.

**Project eligibility:** Section 2403 lists projects eligible to generate offset allowances, including:

- Afforestation and reforestation
- Altered tillage practices
- Capture of fugitive emissions
- Capture or combustion of methane at non-agricultural facilities
- Conversion of cropland to rangeland or grassland
- Cover cropping
- Forest management
- Manure management
- Reduced carbon emissions from organic soils
- Reduction of fertilizer use
- Rice-paddy flood management

**Offset limit methodology:** The Boxer Substitute creates flexibility for covered entities to use offset credits from a variety of projects and locations. The issuance limit was designed to increase the supply of offsets and thus, reduce costs for those sources that have a compliance obligation. By allowing more project types, international offsets, and a roll over clause—the bill seeks to create a large supply of offsets and contain costs.

### **Dingell-Boucher Draft Discussion Bill (House Draft Bill)<sup>26</sup>**

The draft Dingell-Boucher bill was released to the public for discussion purposes by the US House Committee on Energy and Commerce in October 2008. The bill has not been officially introduced in the US House of Representatives.

**Summary of limits:** Regulated entities may use verified domestic or international offsets for a portion of surrendered allowances rising from 5% starting in 2013 up to 35% by 2024. The percentage of allowable domestic and international offsets increases in each compliance period.

---

<sup>26</sup> [energycommerce.house.gov/images/stories/Documents/PDF/selected\\_legislation/clim08\\_001\\_xml.pdf](http://energycommerce.house.gov/images/stories/Documents/PDF/selected_legislation/clim08_001_xml.pdf)

**Project eligibility:** The draft bill permits regulated entities to purchase EPA-approved offset credits for domestic and international emission reduction projects. The proposal requires EPA to recognize domestic offset credits for

- Afforestation or reforestation on acreage not forested after January 1, 2008
- Landfill methane
- Manure management
- Methane collection at coal mines

Other project types will be reviewed for future consideration in the offsets program:

- Controlled wastewater treatment
- Conversion of cropland to rangeland or grassland
- Forest management resulting in an additional increase in forest stand volume
- Methane reduction from reclamation of abandoned surface mines
- Practices that increase agricultural soil carbon sequestration
- Recycling and waste minimization
- Reduced deforestation
- Reduction of nitrogen fertilizer or increase in nitrogen use efficiency

**Offset limit methodology:** Offsets play a greater role in each compliance period. Covered entities will submit offset allowances that represent up to 5%-35% of their total submission requirement during each compliance period:

- Up to 5% (domestic or international) in 2013-2017
- Up to 15% (domestic or international) in 2018-2020
- Up to 30% in 2021-2024 (15% domestic/15% international)
- Up to 35% in 2025-2050 (20% domestic/15% international)

## **The American Clean Energy and Security Act of 2009 – ACESA (passed by the House – June 26, 2009)**

**Summary of limits:** ACESA establishes an entity-based limit that is calculated on an annual basis. Covered entities collectively may use offset credits to demonstrate compliance for up to a maximum of 2 billion tons of GHG emissions annually. The use limit is split evenly between domestic and international offsets each. The EPA can increase the allowable percentage for international offsets (up to 1.5 billion), if the agency determines use of domestic offsets will not be maximized (at current emission allowance prices) in a particular year. Starting in 2018, international offsets are discounted such that 1.25 international offsets would be equivalent to 1 allowance for compliance purposes.

**Project eligibility:** Additionality is determined by the following criteria: 1) not required by law or regulation, 2) not commenced prior to January 1, 2009, except for projects that commenced after January 1, 2001 and that were registered with the EPA as of the date of enactment or are readily reversible and 3) based on activity baselines based on a standardized baseline that reflect “a conservative estimate of business as usual” performance or practice.

Other key project eligibility criteria include:

- Accounting for leakage
- Activity baselines
- Addressing reversals, including mechanisms such as an offsets reserve and/or insurance
- Approval via crediting periods
- Auditing
- Verification and verification accreditation

Offset project types, including international offset projects, will be reviewed and approved within two years with consultation from the offset integrity advisory board. This board will prioritize offset project types for consideration.

**Offset limit methodology:** Offsets could play a greater role over time in the proposed program—increasing from approximately 30% use limit in 2012 to 67% by 2050. The formula to calculate the use limit requires EPA to divide the number 2 billion by 2 billion plus the emission allowances available in the previous year and multiply by 100 (for a percentage limit). The President may make a recommendation to Congress as to whether the number 2 billion should be increased or decreased. In addition, the program will recognize offsets for reduced deforestation that meet specific eligibility criteria.

## Annex 2: Illustration of a Region-Wide “Carry-Over” mechanism

The WCI Partners limit offsets to no more than 49 % of the overall reductions, in order to ensure that a majority of emission reductions required under the program occur at covered entities and facilities. Considering the important role of offsets in reducing the overall compliance cost of the system, the Partners recommend the implementation of a region-wide carry-over mechanism that can help to maximize the number of offsets used for compliance under the proposed limit. As noted above, such a mechanism is only appropriate to consider where the overall offset limit is sufficiently stringent.

Under the region-wide carry-over approach, if the total amount of offsets used across WCI in a given compliance period is less than the total amount of offsets allowed, then the difference in these two amounts would be added to the subsequent period’s offset limit (in absolute terms), with the percentage offset limit adjusted appropriately. The numerical example below illustrates how the offset limit would be adjusted by the carry-over mechanism.

For simplicity of illustration, assume a cap-and-trade system with three compliance periods. Assume also that 49% of emission reductions across the three periods is estimated to be 142 105 tCO<sub>2</sub>e (referred to as “tons” below), which is equivalent to an offset limit set at 5.0% of compliance obligations (i.e. emissions) across all periods, as follows:

1<sup>st</sup> compliance period cap (allowances distributed): 1 000 000 tons

2<sup>nd</sup> compliance period cap (allowances distributed): 900 000 tons

3<sup>rd</sup> compliance period cap (allowances distributed): 800 000 tons

Total allowances distributed (all periods): 2 700 000 tons

Offset use percentage limit = (offset credits allowed) / [(total allowances) + (offset credits allowed)] = 142 105 / (2 700 000 + 142 105) = 5.00%

Since the limit is expressed in terms of compliance (i.e. emissions), the “carry-over” is calculated based on the number of allowances surrendered for compliance. Example 1 shows how the “carry-over” works when all allowances are surrendered at the end of a compliance period and example 2 when regulated entities retain some allowances for use in a future period.

### Example 1: Carry-over assuming no banking of allowances

1st compliance period :

If all allowances are surrendered at the end of the first compliance period, then the maximum amount of offset credits that could be used during the first compliance period would be 52 632 tons. (In other words, 1 000 000 allowances and 52 632 offset credits could be surrendered to cover total emissions of 1 052 632 tons of emissions; 52 632 offset credits represents 5.00% of 1 052 632 tons of total emissions.)

If all allowed offset credits are use during the first compliance period (i.e. 52 632 tons), then there would be no carry-over and the limit would stay at 5.00% during the second compliance period.

If all first period allowances are used (none banked), but not all allowed offsets are used, let say only 40 000 tons instead of 52 632 tons of offsets, then, with a carry-over, the new offset limit would be calculated as follows:

Total allowances remaining in the system = (total number of allowances to be issued) – (number of allowances used for compliance) = 2 700 000 – 1 000 000 = 1 700 000 allowances

Total allowed offsets remaining = (total number of offset credits allowed for compliance in the system) – (offset credits used for compliance) = 142 105 – 40 000 = 102 105 offset credits

Offset use percentage limit = (remaining offset credits) / [(remaining allowances) + (remaining allowed offset credits)] = 102 105 / (1 700 000 + 102 105) = 5.67%

Therefore, the use of offsets in the second compliance period would be limited to 5.67% of compliance obligations.

A similar calculation would be performed at the end of the second compliance period to adjust the offset limit percentage for the third compliance period. The third compliance period offset limit would be greater than or equal to the percentage set for the second compliance period (5.67% in the case shown).

## **Example 2: Carry-over assuming banking of allowances**

Following example 1, suppose at the end of the first compliance period only 950 000 allowances are surrendered for compliance purposes (i.e. 50 000 allowances are banked for use in the second or third compliance period). Suppose also that only 40 000 offset credits are used for compliance. Under the carry-over the new offset limit for the second and third compliance period would be:

Total allowances remaining in the system = (total number of allowances to be issued) – (number of allowances used for compliance) = 2 700 000 – 950 000 = 1 750 000 allowances

Total allowed offsets remaining = (total number of offset credits allowed for compliance in the system) – (offsets credits used for compliance) = 142 105 – 40 000 = 102 105 offset credits

New offset limit = (remaining offset credits) / [(remaining allowances) + (remaining allowed offsets credits)] = 102 105 / (1 750 000 + 102 105) = 5.51%

Therefore, the use of offsets in the second compliance period will be limited to 5.51% of compliance obligations.

Again, a similar calculation would be performed at the end of the second compliance period, and the third compliance period offset limit would be greater than or equal to the percentage set for the second compliance period (5.51% in the case shown here).

### **From a stakeholder perspective**

If we use this example, a covered entity knows a) that the offset limit will be set at 5.00% of compliance obligations for the first compliance period, and b) that over the subsequent compliance periods, the offset limit will either increase or stay the same as the prior period's limit.

For example, suppose covered entity A emits 50 000 tons during the first compliance period. At the end of the period, the facility will have to surrender a combination of allowances and offset credits equal to emissions (or compliance obligation), i.e. 50 000 tons. Entity A can comply without the use of offsets, by surrendering 50 000 allowances (which it may have received through a free allocation and/or purchased in the market or at auction). Alternatively, the entity can acquire and surrender up to 2 500 offset credits, which reflects the region-wide offset limit of 5.00% multiplied times its emissions (5.00% of 50 000 tons) along with 47 500 allowances (50 000 tons minus 2 500 offset credits). If entity A uses fewer than 2 500 offset credits -- for example, 1 700 offset credits -- then the remainder (800 offset credits) are used to calculate the *region-wide* carry-over for the remaining compliance periods.

Let's assume in the second compliance period that entity A emits 45 000 tons. Let's also assume as in example 1 above, that several entities did not use the full amount of allowed

offset credits and that, as a result, the second compliance period's offset limit increases to 5.67%. In this case, entity A could use up to 2 552 offset credits (5.67% of 45 000 tons) for compliance in the second period. Because of the region-wide carry-over, entity A has an additional 302 offset credits that it can use, as compared with a system without a carry-over, in which case the allowable offset amount would have been 2 250 (5.00% of 45 000 tons), if the limit stayed at 5.00%.

This example also points out the difference between a *region-wide* (recommended) and an *entity-specific* (not recommended) carry-over mechanism. Under an entity-specific carry-over, entity A in the example described here would have had an additional 800 offset credits to use in the second and/or third compliance periods. The amount of additional offsets available to an entity would be solely a function of how many offsets it had been allowed and (not) used in the past. In contrast, a region-wide carry-over mechanism would adjust the offset limit for *all* entities in subsequent periods.