

Understanding H.R. 2454

Protecting Energy-Intensive Trade-Exposed Industry

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This primer focuses on H.R. 2454's allocation program for energy-intensive, trade-exposed (EITE) producers, which distributes allowances to affected entities based on production output. This primer seeks to clarify what is a complex system for both defining eligible industrial sectors and determining the amount of allowances for distribution to individual entities. It also highlights several areas where the program, as it is currently written, can be modified, particularly as it pertains to hard-to-define, heterogeneous manufacturing sectors.

Why are competitiveness provisions necessary?

Concerns over the potential impacts of proposed U.S. climate policy on the competitiveness of U.S. industries are at the center of current political debate, and have prompted lawmakers to include relief provisions for certain EITE industries in the recently passed House climate bill. Concerns arise from the possibility that a cap on U.S. industrial sectors might provide a comparative advantage to producers in uncapped countries, leading to loss of competitive advantage that some fear could cause a migration of manufacturing to uncapped competitor countries. Moreover, the shifting of economic activity to uncapped countries could generate a corresponding increase in uncapped countries' GHG emissions—what is referred to as *emissions leakage*—thereby undermining the efforts of the U.S. and other countries that do adopt a cap.

Domestic policy addressing these concerns can be judged in terms of how well it achieves three key goals:

Prevent economic risk to U.S. EITE industries in the face of higher costs

Guard against “emissions leakage” from a loss of market share to more carbon-intensive foreign producers

Provide for equitable distribution of relief to EITE firms that need it the most

The American Clean Energy and Security Act, hereafter referred to as H.R. 2454, includes two provisions aimed at addressing competitiveness concerns: 1) a program for freely allocating a number of emission allowances to qualifying EITE industries and 2) an import allowance requirement, coming into effect in 2020, if major emitting competitors do not agree to binding commitments of their own. Free allowances can help to counter economic risks to U.S. industries that simultaneously incur high energy input costs and compete directly in global markets where major competitors are uncapped (e.g., iron and steel, aluminum, cement, glass, and paper).

What EITE provisions are in H.R. 2454?

Figure 1 provides an overview of the system for allocating allowances to EITE industries, dividing program rules into three parts.

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Beginning with the enactment of legislation, H.R. 2454 reserves a number of allowances from the total allowance pool for EITE industries, starting at 2% of available allowances in years 2012 and 2013, rising to 15% in 2014 to coincide with the capping of industrial manufacturer emissions, and then slowly declining to 0% by 2035. The total number of emission allowances freely distributed to EITEs cannot exceed the pool of reserved EITE allowances.

For a production entity to be eligible to receive EITE allowances, it must reside in a sector that meets EITE eligibility criteria. H.R. 2454 uses the six-digit classification level of the North America Industrial Classification System of 2002 (NAICS) to define sectors, and qualifying sectors are those whose output meets either 1) a threshold for average energy or greenhouse gas (GHG) intensity¹ and trade intensity² or 2) a very high energy or GHG intensity. Eligibility criteria are meant to capture producers who—by virtue of their increased reliance on what will be higher-priced energy inputs, exposure to foreign (potentially uncapped) competition, or exceptional GHG emissions necessitating large purchases of emissions allowances—stand to lose the most should a U.S. policy capping emissions be enacted.

While the EPA Administrator is charged with creating an initial list of eligible sectors and updating that list periodically (once in 2013 and every four years thereafter), owners of entities falling outside the list of eligible sectors may petition the EPA to designate their subsector of six-digit NAICS industries eligible for EITE allowances, provided they meet the same eligibility criteria as the larger, six-digit NAICS sectors. Allowances would then be given on a prorated basis to those newly eligible facilities, dating from the year the petition was submitted, and taken from the current year's pool of EITE allowances.

Table 1 provides a list of 47 six-digit NAICS sectors identified by House Energy and Commerce committee staff using data assembled and provided by EPA, that meet qualifying criteria for EITE allowance eligibility. Most sectors involve primary materials processing (i.e., glass,

cement, steel, aluminum, or bulk chemical manufacturing) but the variety of products and manufacturing processes, and associated energy and GHG emissions, that can fall within a single qualifying six-digit NAICS code may be considerable. This may obstruct the goal of effectively targeting true EITE firms, to which we return below.

For emissions-capped EITE entities, the number of emission allowances received is based on 1) a facility's output times a measure of direct carbon emissions per unit of output across the sector (what is called the *direct carbon factor*) and 2) its output times a measure of GHG emissions from the entity's purchased electricity times a measure of average electricity use per unit of output across the sector (what is called the *indirect carbon factor*). Uncapped entities that fall within qualifying EITE sectors are given allowances based on their *indirect carbon factor* only. If the entity has received payments from its electricity provider — per the energy cost containment provisions in H.R. 2454 — an adjustment is made to ensure that firms receiving free allowances are not credited for purchases of electricity not borne by them or for which they have been otherwise compensated by their electricity provider. Using an output-based allocation scheme based on the sector average provides an advantage to more efficient entities within the sector, who will receive allowances equivalent to the sector average, but will generally need less than that due to their lower emissions per unit. The surplus can then be sold. This is intended to provide an ongoing incentive for efficiency improvements.

Areas of concern

Output-based allocation of free permits to certain EITE industries is viewed by some economists³ as an improvement over allocation not tied to output — the approach taken by the EU — as the former effectively shifts firms' marginal production costs downward and thereby improves terms of trade, while the latter is essentially a fixed subsidy that does nothing to improve competitiveness. At the same time, output-based allocation is far from perfect. For one, it can weaken or even eliminate

¹ Energy intensity is the cost of purchased electricity and fuel for the sector divided by the value of shipments of the sector. GHG intensity is a measure of GHGs emitted by the sector divided by the value of shipments of the sector.

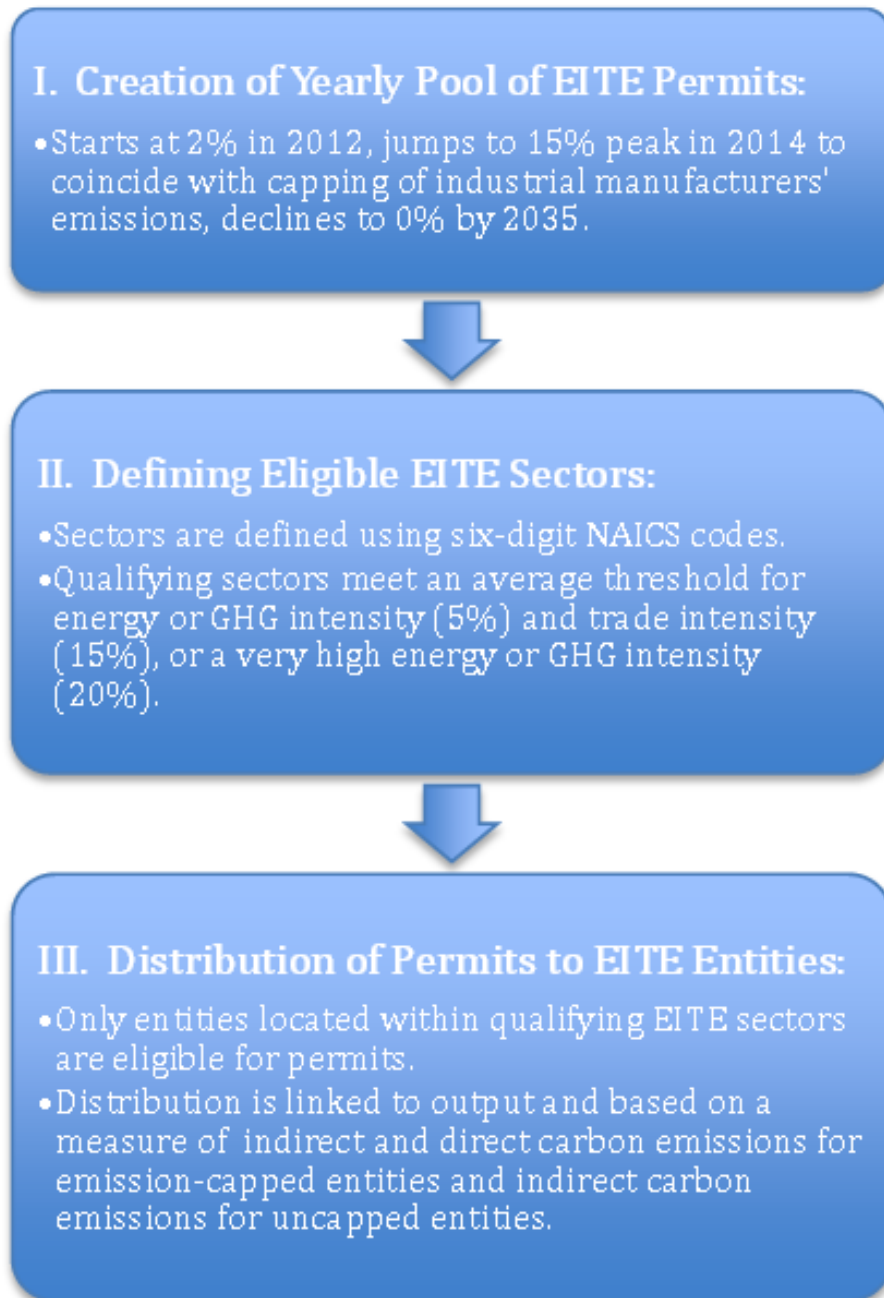
² Trade intensity is the value of total imports and exports of the sector divided by the value of the shipments plus the value of imports.

³ See Fisher and Fox, "Output-Based Allocations of Emissions Permits: Efficiency and Distributional Effects in a General Equilibrium Setting with Taxes and Trade," Resources for the Future Discussion Paper 04-37, 2004. Stavins discusses advantages of output-based allocation in his posting for the Belfer Center at Harvard University. Available at <http://belfercenter.ksg.harvard.edu/analysis/stavins/?p=117>.

the carbon price signal, which is the objective of an efficient cap-and-trade program to begin with. Awarding free permits to energy-intensive firms also creates a perverse incentive at odds with the goal of transitioning to alternative, less energy-intensive production means, and fails to distinguish between competition from countries

with and without domestic climate policies. Imperfections notwithstanding, the current approach in H.R.2454 uses output-based allocation. H.R. 2454's methodology for defining eligible sectors and distributing permits may be the areas most in need of refinement.

Figure 1. The system in H.R. 2454 for identifying eligible EITE sectors and distributing emission allowances to entities within qualifying EITE sectors.



Because of the heterogeneity of manufacturing processes and products that can be covered under a single six-digit NAICS code (e.g., Sector 325188, “All Other Basic Inorganic Chemical Manufacturing,” will have a myriad of products not easily aggregated to physical units such as tons), some industry stakeholders have expressed concern that energy, greenhouse gas, and trade intensity calculations will be difficult to derive in some cases due to lack of a central physical unit to use in the calculation. Moreover, any resulting calculation based on sectoral averages may lack efficiency and equity, underallocating allowances to EITE industries that fall outside of qualifying sectors and overallocating allowances to non-EITE industries that fall within qualifying sectors.

Three issues are identified which can lead to over-and underallocation of EITE allowances:

1. Manufacturing of products within a single six-digit NAICS code can vary widely with respect to energy and greenhouse gas intensity, frustrating attempts to accurately define energy-or GHG-intensive sectors.
2. Products within a single six-digit NAICS code may serve different markets and not compete with one another, frustrating attempts to accurately define trade-intensive sectors.
3. Facilities manufacturing several products under one roof are assigned a single NAICS code reflecting the largest value operation at the site. If products are manufactured individually at separate sites, a facility’s eligibility for EITE allowances may change.

Moreover, the legislation is ambiguous on how production output will be valued and credited. If production is valued in physical output, the Administrator will be tasked with determining appropriate output measures for qualifying sectors that may have a multitude of different products that are not directly comparable and additive. If on the other hand, output is measured in the dollar value of shipments rather than in physical units, the program rewards high-value product manufacturers at the expense of the lower-value product manufacturers — who may actually have greater exposure to EITE risks than the high-value producers. Plant-level information to address these issues is contained in government databases collected by the Census Bureau, but there are restrictions on access and use of these

data at the plant level, even for government analysis, that need to be resolved.

A final area of concern surrounds the number of EITE firms falling outside of eligible six-digit NAICS sectors and their right to petition the EPA to designate a subsector of six-digit NAICS industries eligible for EITE allowances. While H.R. 2454 language on petitioning is fairly straightforward — eligibility is based on meeting the same criteria as the larger six-digit NAICS sectors, and the EPA must make a final ruling no later than six months after the petition is submitted — an evaluation of the number of products and entities potentially covered is essential to any estimation of the number of EITE allowances distributed to firms, as the total EITE allowance pool is fixed in size,

Work under way to inform these decisions

Further analysis focusing on the methodologies for defining eligible EITE sectors and distributing EITE permits to eligible entities, associated data challenges, and process for resolving concerns can help address the high degree of uncertainty surrounding the program. Specifically, we suggest analysis involving:

- evaluation of presumptively eligible sectors (Table 1), revealing to what extent true EITE entities are and are not captured;
- an estimation of the number of products and manufacturers that fall outside of eligible EITE six-digit NAICS sectors who may qualify for EITE eligibility under rules for petitioning;
- an analysis measuring to what extent products from presumptively eligible sectors can be characterized by physical unit measures of output and other variables that may serve as alternative measures of production throughput;
- an analysis of data challenges surrounding energy and trade intensity calculations at the plant level, including current availability and privacy issues;
- evaluation of the need for a formal interagency process, with possible academic and nonprofit contributions, addressing these questions; and
- examination of whether the allocation methodology drives the kind of environmental behavior sought by legislative intent.

This primer is part of a broader effort by the Nicholas Institute to convene researchers, Congressional staff, and

various stakeholders to explore ways of containing the overall cost of climate legislation. As part of this effort the Nicholas Institute is now working at the request of Senate staff and stakeholder groups to design the work plan for an analysis that will address these issues and provide guidance to members of Congress and constituents on the practical consequences of different interpretations of the EITE provisions in H.R.2454 and how the provisions might be improved to better meet its legislative intent.

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Nicholas Institute for Environmental Policy Solutions

The Nicholas Institute for Environmental Policy Solutions at Duke University is a nonpartisan institute founded in 2005 to help decision makers in government, the private sector, and the nonprofit community address critical environmental challenges. The Nichols Institute responds to the demand for high-quality and timely data and acts as an “honest broker” in policy debates by convening and fostering open, ongoing dialogue between stakeholders on all sides of the issues and providing policy-relevant analysis based on academic research. The Nicholas Institute’s leadership and staff leverage

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