White Paper: Carbon Priced Procurement

Premise

Setting benchmarks, limits, and targets on a per-material basis is challenging and requires many judgment calls; there are hundreds of kinds of steel and concrete products alone.

Creating whole-building baselines has a related set of problems, and is likewise labor-intensive and prone to being gamed.

A much simpler approach is to publish a carbon price (and accompanying rules) when the project is tendered, and solicit competitive bids that include paying for the carbon.

CPP Approach.

1. Set a **Project Carbon Price** to be used for the tender.
2. For each material in scope, state the conservative GWP per unit that will be assumed if no EPD is provided. We recommend using the 80th percentile of GWP emissions for suitable products. *EC3 automatically generates these based on material category and performance specs. Defaults are less vulnerable to challenge than Limits, since a proponent need only submit an acceptable EPD for the default to become moot.*
3. Solicit bids. Bidders will estimate the GWP they can achieve, multiply by the carbon price, and factor that into their bids. *Competition keeps the total cost down. There is no need to estimate a baseline. The carbon price makes deciding which GWP reductions to pursue into a straightforward business decision by the winning bidder.*
4. As material is delivered, determine the Realized Carbon based on the EPDs provided and quantities delivered. If acceptable EPDs are not provided, that material is assumed to emit at the Conservative Estimate. *Only the winning bidder needs EPDs, and they potentially have years to reduce carbon and get documentation between design and final delivery. It is not a problem if low-quantity materials lack EPDs, since the total emissions will be negligible even when the ConservativeEstimate is used.*

The Contractor is paid according to this formula (see example):

Payment = Bid Price - ProjectCarbonPrice * RealizedCarbon

The system has some major benefits:

- The cost per tonne of carbon reduction never exceeds ProjectCarbonPrice.
- The cost/benefit ratio of reduction and documentation is clear.
- The job remains a lowest-qualified-bid tender.

This system avoids many common pitfalls:

- Needing to set baselines/limits for hundreds of material categories and spec ranges.
- No incentive to reduce below a certain limit.
- Managing exceptions for small quantities of high-emitting products.

- Over-reacting to the inevitable differences between early estimates and final delivery.
- Overpaying for small carbon reductions to get below an arbitrary limit.
- Appearing to set barriers to competition (e.g. in violation of free trade agreements)

Difficult issues like PCR incompatibility can be handled by adding extra uncertainty.

It should be noted that the above pattern can be expanded into a Carbon Added Tax or Carbon Border Adjustment Mechanism.

Rules & Boundary Conditions:

- Normal material specifications still need to be met as usual. Highly prescriptive specifications (e.g. w/c ratio) are discouraged in favor of performance requirements.
- Purchased Carbon offsets cannot be used to reduce emissions.
- Verified carbon capture, utilization, and storage of actual product emissions can be included (as part of an EPD) and become the property of the owner.
- Realized Carbon includes all product made for the project (including waste and attic stock).
- EPDs may be issued after delivery of the material, as long as the underlying LCA study period includes manufacturing of the material delivered. *EPDs require a year of data, so this makes sure manufacturers just getting EPDs for the first time can participate*

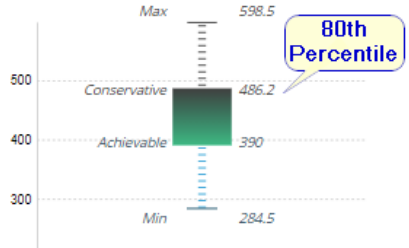
Dealing with Missing Data ("Burden of the Doubt")

Data about construction materials comes in a huge range of specificity, from national averages down to facility-specific EPDs based on specific data from the supply chain. Facility and supply chain data is highly relevant and often leads to values 40% above or below the estimates in major databases.

This specific data can only come from voluntary disclosure by manufacturers or their representatives; thus the onus (the burden of doubt) should be on the manufacturer. So we want some incentive or inducement to encourage disclosure.

Treating industry EPDs, multi-facility product EPDs, and supply-chain-specific EPDs all the same (i.e. just comparing the reported value) does not encourage disclosure, and indeed actively rewards obfuscation. Simply rejecting non-ideal EPDs means we will often lack enough data to make useful decisions, and exposes us to accusations of non-tariff barriers. The right approach is to compare products to limits (and each other) based on values we are at least 80% confident in.

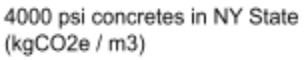
It is tempting to use a 'worst case assumption' when suitable data is not available, but in practice the true 'worst case' can be almost arbitrarily bad, sometimes 10x or even 1000x a typical value; such values simply become exclusionary. It is also tempting to use an industry average, but that gives few suppliers an incentive to declare.



When data is uncertain or unavailable, EC3 assumes the product is at the 80th percentile of materials of similar type and performance. Where a robust set of environmental product declarations is available, the 80th percentile can be directly sampled from the population of products[1]. Where such a dataset is not available, an industry estimated 80th percentile created through modelling can serve until enough companies provide EPDs… which they will do in order to avoid the adverse assumption.

This approach has three advantages:

- It generates reasonable but adverse default assumptions that can be used directly, or as inputs to other EPDs, which are easily subdivided by product performance.
- It is relatively robust to data outliers, odd corner cases, low-volume specialty materials, and system gaming.
- The choice of disclosure vs. acceptance of the 80th percentile estimate is strictly a business decision for a manufacturer/importer to make.



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[1] The 80th percentile of impacts for a set of products is called the 'conservative estimate' in EC3. Its mirror is the 'achievable target' representing the 20th percentile of the market.