

INSTITUTE FOR ENVIRONMENTAL RESEARCH AND EDUCATION

The Outlook and Opportunity for Type III Environmental Product Declarations in the United States of America

A Policy White Paper



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Executive Summary

The use of environmental product declarations is sweeping the globe, and will create a legal barrier to trade unless the US develops its own EPD structure. Environmental product declarations (EPDs) are ecolabels that measure and disclose the environmental performance of products, much like a nutrition label. The experience in France and in Japan in developing mandatory economy-wide EPDs provides a model to be followed, one that includes legislation, a national database, and sector-specific rule development, all of which exist in embryonic state in the US. The US can and should take up this important work in order to maintain its global competitiveness and to achieve cost-effective environmental improvement.

Introduction

Environmental Product Declarations (EPDs) are ecolabels that disclose environmental performance of products and services over their life cycle. EPDs read somewhat like a nutrition label, reporting impact indicator results such as carbon footprints, water consumption, and ozone depletion. They can also include other information such as content of toxic materials or recycled content. What the EPD does not do is assert that the product is environmentally preferable: it simply discloses what its environmental performance is.

The environmental opportunity that EPDs present is two-fold: EPD studies allow producers to understand the sources of their products' environmental impacts, and the EPD itself allows purchasers to choose products with lower environmental impacts. Both these drivers should lead to the reduction of environmental impacts.

The EPD standards require that a Product Category Rule (PCR) be developed for each system functional unit¹. One cannot have a product category rule that covers everything from toys to trucks, but must have a separate product category rule for each kind of product. Sharing a functional unit means that the products provide the same social benefit for consumers, and direct comparisons can be made between different products. Logically, this means that every kind of product must have its own rule. The [UNSPSC](#), a database of product names used for international trade, already has over 40,000 different products listed. These product names are identified at a quite high level: for example, the clothing industry has a single product listing at the level of men's trousers (all types, including shorts). The UNSPSC seems like a good first estimate of the number of PCRs that need to be developed: there are at least 40,000 PCRs and perhaps as many as 100,000 PCRs that need to be developed.

Environmental Product Declarations are owned by the companies that are selling the product. However, the PCRs are produced and owned by a third party, called the program operator. The program operator is responsible for making sure that the rules are developed in a transparent and fair fashion according to the international standards, and that the validation of EPDs using the PCR is done in such a way that quality is assured.

To date, EPDs have been voluntary. They have been undertaken by companies that were interested in disclosing their products environmental performance, typically for the purpose of environmental marketing. All have been undertaken following the guidance of international ecolabel and LCA standards. But that is changing. In France, a law was passed requiring that all high volume consumer products sold in France must bear an EPD, designed in accordance with the guidance produced by the French Standardization body, AFNOR (*Association Française de Normalisation*). That requirement comes

¹ A product's system function is the social purpose for which the product is purchased, for example floor covering. The functional unit quantifies that social service, for example square meters of commercial floor coverage for 10 years. This permits comparisons between quite different products that provide the same service, for example carpeting versus tiles.

into force at the end of 2010. We can expect the EU to follow soon afterwards, because the [European Committee on Standardization](#) is developing such standards. In Japan, there are efforts underway to have a national EPD as well.

Standardization Supporting Environmental Product Declarations

International standards have been developed to support EPDs. *ISO 14025-2006: Environmental labels and declarations —Type III environmental declarations —Principles and procedures* lays out the methods for developing and verifying environmental product declarations. It includes requirements for program operators, program elements and verification schemes. The standard calls out ISO 14040 and 14044 (the LCA standards) as a requirement for the ecolabel.

There is also a standard specific to building products, *ISO 21930-2007, Sustainability in building construction environmental declaration of building products*. This standard calls out the ISO 14025, 14040 and 14044 standards. In effect there is a cascade of requirements, with the general LCA standard requirements flowing to the ecolabelling requirements flowing to the EPD and building EPD requirements, each becoming more specific. The lowest level of standardization is at the level of the PCR.

There are two standardization efforts underway in the EPD arena in the USA. One is the Leonardo Academy-Scientific Certification Systems Standard, which is a closed system that is seeking to turn the proprietary LCA approach of Scientific Certification Systems into a national standard. The second is the efforts of ASTM International which is developing a Building EPD standard in its E60 committee under an open process.

EPD Program Operators

Sweden was the earliest supporter of public EPDs. The Swedish effort has evolved into an international [EPD network](#), whose membership consists of three Swedish organizations, but whose EPDs cover goods from other European nations as well. As of this writing, 89 EPDs are listed in this system, with three PCRs under development. In Australia, the EPD system is called [Good Environmental Choice](#), and lists over 160 EPDs. The Japanese EPD system is called [Ecolleaf](#). It lists nearly 200 EPDs.

There are several program operators in the USA focusing on different industry sectors, and none with more than a few PCRs.

- The Institute for Environmental Research and Education, a not-for-profit in Washington State has an EPD program in the food industry, with its first [EPD produced in 2005](#).
- The Green Standard, a not for profit company provides EPDs focusing on building products. Its first EPDs were [produced in 2008](#).
- Scientific Certifications Systems, a for-profit company in California, has developed proprietary draft standards for EPDs.

- There is some lack of clarity, but there have been suggestions that EPD programs may be in development at Underwriters laboratories, Good Housekeeping, and in the Sustainability Consortium, an effort developed and supported by WalMart.

There is also a [Global Type III Environmental Product Declarations Network](#) (GEDNET) which is an association of organizations providing EPDs. As noted on their website,

The overall purpose of the network is to foster co-operation and encourage information exchange among its members and other parties operating or developing Type III Environmental Product Declaration programs and to discuss key issues in developing such programs.

Non-EPD Ecolabel Efforts Underway in the USA

In the United States, several industry sectors have undertaken to develop ecolabels. These have to date been Type I (a multi-factoral third-party program) or Type II labels (that are self-declared, based on one or more factor). These labels require meeting certain criteria, but do not produce the EPD kind of disclosure of life cycle performance.

In the US, about 40% of primary energy is used to operate buildings, and an additional 10% is found in building embodied energy, so it is not surprising that many of the ecolabel programs are related to the building industry.

For example,

- [US Green Building Council LEED](#) Program, A Type I ecolabel
- US EPA's [Energy Star](#) and [Energy Star for Buildings](#), Type II ecolabels
- [Green Globes](#) program, a competitor to LEED and highly supported by the [Athena Institute](#)
- [Green Seal](#), Providing Type I labels in many sectors
- [Built Green](#), Providing ecolabels for residential buildings
- the [EPEAT](#) standards developed by the electronic industry;
- The Outdoor Industry Association is developing its own Type I ecolabel;
- BIFMA, the Business and Institutional Furniture Manufacturers Association has developed a quasi-EPD label system;
- The [FSC](#), the Forest Stewardship Council provides a sustainable forest product ecolabel.

In fact, there are so many ecolabelling schemes around the world that there is an [organization](#) dedicated purely to tracking them.

The proliferation of these standards and labeling schemes makes it very difficult for purchasers to make the necessary side-by-side comparisons in order to choose the best products. It is not clear which (if any) programs are based on the best available science.

Such a system is the goal of EPDs, which are based on life cycle assessment, the science of measuring the environmental performance of products in a holistic and cradle to grave fashion. What is needed to make the EPD approach effective is an ongoing and well-funded infrastructure that conforms to existing international standards, while supporting and implementing best environmental science as it develops. Such an infrastructure has been developed in [France](#), where effective 1/1/11, all high-volume consumer items will be graced with an environmental product declaration in the form of an on-container label that can be viewed by consumers at the point of purchase. At a minimum this will include a carbon footprint disclosure, but other impacts will also be included.

Moving from Voluntary to Required EPDs

The French Approach

The French system is illustrative of emerging obligatory EPD programs. It is driven by umbrella national legislation (*le Grenelle de l'Environnement*). The process is managed by the *Association Française de Normalisation* (AFNOR), the French national standardization body. There are three AFNOR standardization committees developing cross-cutting technical guidance applicable to all products: one on general technical issues, one on packaging and one on transportation. Each industry sector organization has its own committee developing technical guidance for the sector, and subcommittees developing the product category rules. Finally, the system is supported by a national database that not only includes national average Life Cycle Inventory data, but has simple applications for supporting estimates of energy grids from other nations.

The French approach appears to be working. Recently, it was announced that several hundred projects were underway to develop PCRs in accordance with draft standards. This should be compared to the voluntary national programs with a few hundred EPDs developed globally over the last decade. It does appear that most, if not all consumer products will comply by the deadline, now little more than a year away. One of the interesting facets of development of the standards in France, is that the industry sector organization are quite deliberately seeking to coordinate with other efforts globally. Of special note is the electronics sector which is working closely with efforts underway in Japan.

Japanese Carbon Footprint Labels

The Japanese government is pursuing a carbon footprint ecolabel to be applied to all products sold in Japan, with labels provided on the package. Standardization is underway, with full implementation planned for 2010-2011. The figure below is an example of the proposed label².

²² Details of the developing Japanese system courtesy of Atsushi Inaba.

Sample of Carbon footprint



エコプロダクツ2008出展
カーボンフットプリント暫定表示
Provisional mark for
EcoProducts 2008 Exhibition

Enterprise	KOKUYO S&T Co.,Ltd.
Product of the carbon footprint	Pipe Type File, "EcoTwin-R", (7-RT650B),
Quantity	A4-size, Paper Capacity; 5cm

Stage	Material Production	Product Manufacturing	Transportation	Retailing	Usage	Disposition /Recycling	Total
GHG Emission g-CO ₂ /P	1003.8	27.3	50.9	155.9	0	99.5	1337
Calculation condition	<p>-The GHG emission in Material Production Stage was calculated using design weight and secondary data prepared by the secretariat, where loss ratio of sheet type material was considered.</p> <p>-The GHG emission in Retailing Stage was calculated using given value of GHG per sales price, which was prepared by the secretariat.</p> <p>-The GHG emission in Usage Stage was identified as zero due to no energy consumption in this stage.</p>						

The Japanese system, too is being developed through a combination of national standards (Japanese Industrial Standard) and sector-based specific decisions for product category rules. They are following all the requirements of ISO 14040, 14044 and 14025. The sponsoring governmental body is METI, the Ministry of Economy, Trade and Industry. The Japanese efforts have many parallels to the efforts in France.

- Government regulatory support
- National standardization
- National Database
- Sectoral approach to develop the PCRs

Existing LCA and EPD Infrastructure in the United States of America

There are several elements in place in the U.S. that speak to the capacity to support an EPD system.

1. The US has a national life cycle inventory database, which is currently being revamped to have world-class data quality and coverage. The database is owned by the National Renewable Energy Laboratory, part of the Department of Energy, and it has recently been allocated significant funding to support this effort. The [roadmap](#) for the work is available online.

2. The US has a professional society for LCA, the [American Center for LCA](#), which has been building LCA capacity in the USA over the last decade, and which holds annual conferences and certifies LCA professionals (the latter an essential requirement for EPDs).
3. The National Institutes of Standards and Technology has a long-standing and robust LCA tool, the [BEES](#) (Building for Environmental and Economic Sustainability) tool. The BEES application contains information on agricultural and bio-based as well as building products.
4. There are several consulting firms in the US that specialize in LCA. Their size and number are growing.
5. Several universities in the US offer courses in LCA, and this number is growing. There are a few institutions where higher level degrees are granted based on LCA studies.
6. As illustrated above, there is a strong interest and capability on the part of many sectors of the economy to develop ecolabels.
7. There is interest in the U.S. Congress to develop a national ecolabel program. Initial efforts to launch the ecolabels program have not yet been successful, but they have the potential to do so in the relatively near term (over the next few years).
8. The Institute for Environmental Research and Education is partnering with U.S. EPA Region 10, ASTM-international, and other interested parties to develop a scalable model for PCR development for building components.

The Economic Risk of Taking No Action

It is likely that the French EPD model will be adopted to a greater or lesser extent around the world: national governments will require that environmental product declarations be provided for consumer products sold in the country. As noted above, there are already efforts towards that end in Japan and elsewhere.

These ecolabels laws are not considered to be technical barriers to trade under the WTO rules. That means that companies wishing to sell products in France and the other countries that follow France's lead will have to perform the relevant LCA studies and produce the EPD. The cost of doing so will be very high unless there is significant and ongoing capability and infrastructure support developed in the United States. Without government support, only the largest domestic and multinational companies will be able to sell their goods in these countries.

If the United States does not develop its own EPD system, the cost of providing EPDs will fall unevenly, contributing to a trade imbalance. The US exported \$272 Billion³ to the European Union in 2008, but it has had a negative balance of trade with the EU for every month in the past three years, \$96 Billion in 2008 alone. Uneven EPD requirements will not help the situation. The trade balance is even worse with Japan, where there has been a negative balance of trade every month for at least the last decade. In 2008, there was a deficit of \$74 Billion, despite substantial export (\$65 Billion in 2008⁴). In effect, these

³ US Census Bureau <http://www.census.gov/foreign-trade/balance/c0003.html#2008>

⁴ US Census Bureau <http://www.census.gov/foreign-trade/balance/c5880.html#2008>

markets will be closed to most US businesses, while US markets remain open to them. The trade deficit will balloon.

A national EPD system provides an opportunity to use market forces rather than regulation to decrease climate change and other environmental impacts. The simple fact of disclosure has proven to be a very effective spur to pollution prevention, as companies see where they stand vis-à-vis their competition. Decreasing pollution leads to better public health, lower medical costs, and therefore an economically stronger nation. EPDs provide a low-cost method to decrease the environmental impacts of the economy, and ongoing measurement provides an imbedded continuous improvement mechanism.

The Work Ahead

The US needs to develop an EPD system that is

- 1) Transparent and inclusive
- 2) Supported by inexpensive background data
- 3) Credible and in conformance with international standards, thus providing an opportunity for cross-recognition between countries
- 4) Quickly implementable
- 5) Inexpensive and
- 6) Supported by legislation

Such a system cannot be developed overnight. But if Congress acts and existing organizations cooperate to achieve the goal, US business can continue to be competitive internationally, and their economic success can drive the environmental improvement we need.