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ACCOUNTING AND COMMUNICATING EMISSION REDUCTIONS ENABLED BY INNOVATIVE PRODUCTS

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ABSTRACT

An increasing number of companies position their products in the market as enablers of emission reductions. Examples of such products are low-temperature detergents, fuel saving tires, energy-efficient ball-bearings, and teleconferencing equipment. For a successful market introduction of such products, it is essential to communicate emission reductions in a credible and comparable way. Methodologies, based on Life Cycle Assessment, have been developed by individual companies and at sector level (e.g. ICT and chemical sector). This paper discusses a number of methodological issues, inventoried by WWF, Ecofys, Utrecht University and a number of leading companies, where guidance is needed: 1) definition of the concept, 2) baseline selection 3) multiple environmental impacts, and 4) distribution of emission reductions in the value chain.

INTRODUCTION

Companies want to go beyond emission reductions in their own operation facilities by designing products that reduce emissions downstream of their value chain. Such innovative products often reduce emissions in the use phase. A fuel efficient tire, for example, reduces greenhouse gas (GHG) emissions when driving a car; and teleconferences reduce travel needs and related GHG emissions. Such emission reductions are also called “avoided emissions” (WRI and WBCSD, 2011) or “Climate Positive Products” (WWF Climate Savers Program). Companies in the chemical and ICT sector in particular see opportunities for their products. Several studies demonstrated the large potential of products in these sectors (ICCA, 2009; GeSI, 2010; Denkstatt, 2010).

Many companies already sell innovative products that enable emission reductions and also communicate openly the results. Examples of such products are low-temperature detergents, fuel saving tires, energy-efficient ball-bearings, and teleconferences. Increased sales of such products can shift markets into a more environmentally-friendly direction. WWF included the so-called “Climate Positive Magnifier” in their Climate Savers Program, which deals with the opportunities for business to expand and open new markets for products and services that significantly reduce emissions for their customers.

Despite the opportunities, companies face challenges when introducing their innovative products to the market. One of the main challenges is to communicate potential emission reductions in a credible and comparable way. Currently, companies develop their own methodologies, which hampers comparison of results. Moreover, companies have the freedom to make choices that present their products in the most positive way. Companies recognize this problem, which has driven some sectors to start developing sector guidelines to ensure credible and comparable results. Examples include the ICT sector (GeSI, 2010), and Japan's chemical industry (JCIA, 2012). The chemical sector is now developing worldwide sector guidelines under the umbrella of WBCSD and ICCA (planned publication in fall 2013).

Existing standards and guidelines, such as the ISO standards on LCA (ISO 14040/44) and the GHG Protocol standards, provide guidance to calculate and compare the environmental impact of products. Nevertheless, there are still some issues under discussion in the context of calculating avoided emissions. WWF, together with Ecofys, Utrecht University and a number of leading companies, took the initiative to inventory the main methodological issues related to the calculation and communication of emission reductions enabled by innovative products. This paper discusses the main findings of the inventory and can serve as a basis for dialogue with other stakeholders.

WHAT ARE AVOIDED EMISSIONS?

Certain products can avoid emissions compared to a reference situation or baseline. The use of such an innovative product, produced by the reporting company, enables additional emission reductions in the value chain of a third party and outside the value chain of the reporting company. Therefore, avoided emissions cannot be deducted from the company's own emissions and should be reported separately (WRI and WBCSD, 2011).

Ecofys, Utrecht University and WWF added two elements to this definition:

1. **Additionality:** It is important that only additional emission reductions are claimed. A product should not have been produced anyway. If an important aspect of the product is emission reduction (decreasing fuel, electricity or energy use) and reduces more emissions compared to the baseline the product can be considered "additional".
2. **Innovativity in time:** Innovativity is an indicator for how much the product is improved compared to the baseline. Innovation is required to stay ahead of the ascending baseline and stimulates the development of new enabling products. It is a very broad concept which entails a large degree of freedom and is very dependent on the baseline.

HOW TO SELECT THE BASELINE?

To calculate avoided emissions, the emissions of the innovative product are compared to a baseline. The selection of the baseline and the underlying assumptions is crucial, since it largely influences the calculated avoided emissions. Three different baselines have been identified to estimate current emissions reductions:

1. Compared to the old product of the same company
2. Compared to a product from another company
3. Compared to the industry average

The baseline should be regularly updated as it is important to determine the degree of innovation. When a product is compared to the product of another company, it is important to select an established product in the market with a considerable sales volume.

INCLUSION OF MULTIPLE ENVIRONMENTAL IMPACTS NEEDED?

A large number of methodologies developed today focus on the reduction of GHG emissions only. Climate change is an important environmental impact, but the production and consumption of products may also result in other environmental impacts, like toxicity and resource depletion (e.g., water). In order to avoid trade-offs to other impacts when introducing innovative products with an enabling effect, other environmental impacts should be taken into account as well.

HOW TO DISTRIBUTE THE EMISSION REDUCTIONS AMONG VALUE CHAIN PARTNERS?

Since the emission reductions take place during the use of a product, it is likely that multiple companies helped to enable these reductions. When calculating the emission reductions at the product level, there is no need to distribute emission reductions among companies in the value chain. When companies want to report the emission reductions at the company level, or even want to sum up the emission reductions realized by their green product portfolio, emission reductions need to be distributed among value chain partners. Yet there is no clear guidance of how to do this. There are a few options, each of which accompanied by pros and cons (see table below).

Distribution method	Pros	Cons
No distribution: all companies in value chain can claim avoided emissions	No allocation necessary	Often double counting Not a fair comparison if a company with little value added could claim everything
Distribution based on value added of (intermediate) products	More fair allocation method where innovation is rewarded	Use of the assumption that innovative companies have more value added
Distribution based on contribution of (intermediate) products to avoided emissions	Distribution is as close as possible to actual performance of (intermediate) product	Not easy to quantify contribution of (intermediate) product to total avoided emissions

CONCLUSIONS

This paper described the main findings of an inventory of existing methodologies to calculate avoided emissions carried out by Ecofys, Utrecht University and WWF. The findings show that there are a few, but tough challenges to overcome to arrive at a calculation methodology for avoided emissions that ensures credible and comparable results. All four methodological issues addressed in this paper, namely the 1) definition of avoided emissions, 2) selection of



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baseline, 3) multiple environmental impacts, and 4) distribution of emission reductions among value chain partners, need clear guidance to avoid misleading results, double counting and trade-offs. The on-going efforts of companies and industry associations to develop methodologies and guidelines makes clear which issues need extra attention and guidance. At this stage it is clear, however, that the accounting and communication of avoided emissions is still in its infancy. The development of an international standard would provide general guidance on how to deal with certain choices and could lead to a wider acceptance of the concept of avoided emissions. It would give the opportunity to companies to increase sales volumes in their green product portfolio, which would also be beneficial for society.

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