

## TOWARD A PRODUCT-LEVEL STANDARD:

### LIFE CYCLE ANALYSIS OF GREENHOUSE GAS EMISSIONS – A commentary from the financial market perspective

#### Introduction

Working as an equity strategist with a bias towards long-term thematic issues and trends I thought it would be a good idea to simply ask one of our mainstream company analysts what he thinks about the idea of a greenhouse gas (GHG) inventory standard at a product level. It is no secret that the mainstream financial world struggled to embrace the climate change topic for a long time – but things have changed quite a bit of late. One obstacle, however, for financial analysts who might otherwise incorporate climate change related factors into their company analyses and valuations is the lack of comparable data. Clearly, a product-level GHG inventory would have the potential to fill the existing gap to some degree and hence help to overcome analysts' reservations. Before commenting on the proposal from Climate Conservancy (CC) in more detail, let's have a look at the opinion of our analyst (who covers the big mobile-phone manufacturing companies, among others):

“With regard to the mobile phone industry, I can say that all main manufacturers have a perfect insight into their supply chain. All suppliers have to run through a comprehensive certification process. Hence, the positive thing would clearly be that the basis for the gathering of the data would be in place already. The flip side of the coin, however, is that the efforts and costs to implement such a system would be substantial. As a result of this new barriers to market entry are likely to build up. On top of this, the system appears to be vulnerable to manipulation.”

*Assuming the system worked perfectly and the data it delivered was accurate, complete, and consistent, would you use the results within your assessment and valuation of companies?*

“Currently, the answer would be a clear No. But of course, the world is changing as we go forward and I would not exclude the possibility that these data may become relevant in the future. There are three conditions each of which would be sufficient for me to take GHG inventories into consideration:

- (1) My clients, i.e. mainstream portfolio managers and buy side analysts, begin to look at these issues putting pressure on me to do the same (direct research-demand related reasons). Currently, this is not the case.
- (2) The clients of the mobile phone industry, i.e. the big infrastructure and service providers like Vodafone, start to set up product-level GHG criteria for their procurement processes (independent of the drivers that may be behind such a move, e.g. regulation, consumer demand, marketing/branding). This is currently not the case, and there are currently no clear signals that this will be the case in the short- to medium-term future.
- (3) Increasing materiality of the price of carbon/CO<sub>2</sub> emission rights for the industry. This would potentially have a significant impact on profit margins, given the competitive character of the industry. This is not the case yet. Neither companies nor investors consider this to be a material issue.

In conclusion, the implementation of a GHG inventory system at the product level would certainly be a nice-to-have with potential for future application. However, for the time being it would have no practical relevance for the financial analyst even if it worked perfectly. Nevertheless, I would consider it to be an option that might move “in-the-money” in the future and is therefore valuable. The conditions under which I expect this to happen have been outlined above. Triggers for any of these to become “active” are not yet in sight.”

## A selective look at components of CC's proposal from the financial analyst's perspective

In the following we'll take a look at CC's proposal for introducing a GHG inventory standard from a micro- or better a bottom-up point of view – i.e. we comment on single components of the proposal considering in particular the usefulness of the expected output of such a system. We do not discuss the question of the materiality of a GHG inventory at the product level for (mainstream) investors at this point. The comments in the introduction are indicative of our position and we'll come to this in our concluding remarks. The criteria we apply to evaluate the usefulness of the proposal are similar to those by which the major financial accounting principles are judged (also referred to by Climate Conservancy). So the starting point is the same – we agree with CC about which principles should guide the process of setting up the system. The difference is that we look at it from a single-stakeholder point of view, the financial market, whereas CC has a less easily definable “multi-stakeholder” perspective. We run through the paper step by step in the same order as it is presented by CC. Accordingly we start with the discussion around the appropriate system boundaries.

### System boundaries

The five criteria against which we benchmark the options are (1) relevance, (2) completeness, (3) consistency, (4) transparency, and (5) accuracy. Again, we do not differ in that respect from CC. The difference may lie in the weight we attach to each of these criteria. Certainly, it makes a difference if you look at them from the financial analyst's perspective compared to the generalist's point of view taken by CC. It is, for example, not of primary importance to us that *all* relevant impacts of a product during its life cycle are taken into account, if this comes at the price of reduced consistency and accuracy. After all, financial analysts will only consider taking GHG inventory data into account if the results are meaningful and enable them to benchmark companies against each other. In trading-off the five principles against each other, we would clear vote for a system that is more narrowly defined than the all-inclusive “cradle to grave” model. Although, it may be the “right” model from a theoretical perspective, we doubt that such a system would be able to live up to the demands of delivering transparency, consistency, and accuracy – and these are necessary conditions that have to be met for the system to find acceptance in the financial decision making world. They should not be sacrificed in favour of a “nice-to-have” system completeness that is not credible and has no practical relevance. We would hence suggest establishing a “cradle-to-gate” system, which includes the entire production- and distribution chain of the product until it is in the hands of the end-consumer. This means that the entire downstream part (use period and disposal) is excluded from the GHG inventories to be provided by companies. This does not mean that companies shouldn't provide information about the downstream GHG impact of a product at all. We only argue that this should not be a part of a product-level inventory system, which finally has to fulfil the same requirements as financial accounting systems in order to be more than just another interesting academic exercise. And in this context we would also argue that a GHG accounting system needs to become a mandatory standard at some point not too far in the future. A voluntary standard should only be considered as a temporary solution, a learning period during which the system can be optimized based on the experience gained. The most promising concept for establishing a system that is potentially able to meet the requirements is the “VAT model”. We come back to this later.

With respect to the downstream GHG impact of a product, we would recommend introducing a separate independent system. The main function of this should be to inform the consumer, comparable to the system that has been established by UK retailers to inform consumers about the health impact of food products. The same logic applies here. Such a dichotomous system would also solve the “philosophical” dilemma with respect to the boundaries of companies' responsibility. If the aim is to seriously incorporate GHG inventories into corporate accounting systems, the responsibility of the company clearly has to end at the factory- or store gates – and not just for practical reasons. Not only

are the accounting systems in the western hemisphere founded on this principle – it is also one of the main pillars of capitalism.

The two-track model would have the advantage to address more precisely the different needs of different stakeholder groups. The “cradle-to-gate” track, which should be an integral part of the companies’ accounting systems, is more targeted at the information needs of financial markets and regulatory bodies (and hence, is more compliance-/cost-/risk- related). The information produced could, for example, be used as input for regulatory measures like the allocation of emission rights or as the base for carbon taxes.

### **Operational boundaries/scope of the system**

We would not recommend “De Minimis” exception rules, despite their potential to reduce the analytical burden for companies. Our rejection has to be seen in conjunction with what we’ve said before. We argued that the system should be rather narrowly defined, limited to the immediate responsibility of companies. That’s one side of the coin. The other side is, that the utility of a cradle-to-gate model can only be exploited if the principles of consistency, accuracy, and in general comparability are not compromised. And making no compromises at this stage should not be prohibitively costly, if the implementation of the GHG inventory system mimics the VAT system, as we would strongly recommend. And besides this more systemic argument against “De Minimis” exception rules, there is also quite a number of arguments against them, looking at the problems that would arise from putting them into practice – e.g. the definition of threshold values. The mass of a product mentioned by CC might be a good proxy measure in some cases, but certainly not in all cases. There is no simple linear relationship between the mass of a product and its carbon intensity. And, after all, how could benchmarks for services products be defined in this context? Certainly, it is possible to find individual solutions for all product groups. This, however, would be very costly as well, so that we doubt that any net cost savings would be possible compared to the ‘all in’ solution in conjunction with a VAT type model. The same applies to the option of a ‘sensitivity analysis’ as a basis for exclusion – once again, the complexity and opportunity costs are too high compared to the marginal utility we would expect from these kinds of tools. We even think that such a system would be detrimental to transparency and comparability, with regard to which there should no significant compromises be made. Furthermore, the complexity of the proposed system itself (even if limited to the ‘cradle-to-gate’ model) is already very high. Hence, we would strongly argue against adding further complexity to it at the implementation level – keep it simple there.

With respect to the ‘Exceptions by type’ option our response is mixed: on the one hand we would certainly argue against tons of handbooks with exceptions and reasons given for exclusion. Once again, this does not contribute to the final aim of delivering comparable, transparent information. On the other hand, a small well-defined set of exceptions that generally apply might indeed make a lot of sense – e.g. the exclusion of capital equipment subsystems as discussed by CC. This could not only help to avoid double counting, but may also make economic sense because of the claimed generally low marginal contributions to GHG inventories. The latter argument, however, needs to be confirmed in the context of the limited scope of the ‘cradle-to-gate’ system that we favour.

Our positive bias vis-à-vis the exclusion of capital equipment subsystems is followed by a negative one with respect to the exclusion of personnel subsystems also discussed in some detail by CC. We agree that there are good fundamental reasons for including them in a broadly defined system. However, following the logic of what we’ve outlined before, it is clear that we would not support the idea of including them in the accounting part of the model that we favour. Again, for this part of the model the “responsibility boundaries” for the firm have to be clearly defined and separated from the responsibilities of other constituents of our overall socio-economic system. We should not try to overload corporate GHG accounting with demands that are well-intended and well-justified, but are of limited practical utility and are even to the detriment of comparability and transparency. As we said above, we could live with subsystems like these being taken into account under the umbrella of a broader ‘cradle-to-grave’ label that is purely targeting consumers’ information needs. It has to be

clear, however, that such a labelling system needs to let consumers know that the quality of information such a label would be based on is very different from that provided by the VAT-type 'cradle-to-gate' model on which we are focusing within this commentary.

### **Identifying & Calculating GHG emissions**

The four main steps of data collection described within the CC proposal are: (1) create a flow diagram, (2) develop a collection plan, (3) collect data, and (4) evaluate data quality. It appears to us that the starting point of CC is a typical manufacturer or retailer for example in the US that has to collect information across all parts of its supply chain. I.e., the process CC has in mind unfolds somewhere from the top of the value chain to the bottom. Realistically, this is probably indeed how a standard could be established in the start-up or test phase we talked about before. This is a practicable way to introduce a voluntary standard. In the mandatory system which we think of as the final stage of the standard setting process, there would be no special role for the "top-of-the-pyramid" companies anymore. A mandatory VAT-type system would have a bottom up- rather than a top down- nature. At each level of the value-creation process, a company would simply need to determine the inputs into its processes precisely and then add the GHG data associated with these inputs to the GHG impacts that its own activities have contributed to the product. Most of the main steps of data collection described by CC would become obsolete within such a setting.

### **Attributional vs. consequential Life Cycle Assessment (LCA)**

We agree with CC, that the arguments in favour of a consequential LCA are predominantly theoretical in nature. In light of what we said before, it is no surprise that we would clearly recommend going for an attributional system.

### **Developing and executing a collection plan**

We agree that product-level GHG inventories should require data for emissions of all Kyoto gases and that guidance for the execution of the collection plan should be taken from the existing GHG Protocol Corporate Standard (e.g. use the familiar categories within direct and indirect emissions areas).

With regard to the challenges discussed by CC caused by indirect emissions, we can only repeat what we said in different contexts before. For the upstream part of the system we point once again to the mandatory VAT-type model we ultimately have in mind. In such a system production inputs like electricity could easily be inventoried. On the other hand, we have already argued that any downstream impacts should not be incorporated anyway in the core system, which would of course also include indirect downstream emissions (e.g. resulting from waste management). We repeat once again that we do not want to drop these important sources of GHG emissions altogether, but rather take them into account in a system that is separated from the core GHG inventory accounting system. By splitting up the LCA, we are able to avoid consistency- and comparability problems that would arise otherwise and which could condemn the whole idea of GHG inventory accounting to failure from the financial market perspective.

### **Data quality requirements**

Having a numerical indicator of data quality is certainly a nice to have. However, most of data quality problems kick in via a broad definition of the LCA, which we do not support anyway, as explained above. With the core VAT-type system we would suggest a data quality indicator would not be necessary. Product-level GHG reporting would be mandatory for all companies with the same accuracy required as in financial accounting. In order to guarantee a high data quality standard, third party verification (ideally by a financial accounting firm) is definitely needed.

With regard to thresholds discussed for the percentage of emission to be documented by primary data, we think that levels of 50% as proposed by Carbon Trust et al. are not acceptable from a financial market perspective. Any threshold solution in general undermines the comparability of the data, particularly at this low level – how should one credibly compare inventories resulting from 99% primary data with those that just deliver at a level of 51%? The solution once again is to define the

core cradle-to-gate system sufficiently narrowly, but to have strict requirements on data quality within this system (including high threshold levels of 95%+, if at all).

### **Co-product accounting**

We would definitely go for the ‘Debit GHG emissions from the primary product’ option. And the main reason is the displacement argument: if there is a need/demand for a co-product, it would be produced by some other means anyway, with the respective GHG emissions consequences. The main challenge is to allocate the total emissions of a production process to the main product and all co-products. However, companies could apply basically the same rules and processes for this task as in cost accounting – a discipline that is well-established and in which companies usually have a lot of experience. This also fits in nicely with the idea to have VAT-type accounting system for GHG inventories. The other options discussed by CC (i.e. ‘Credit the economic value of the primary product’ and ‘Ignore the co-product’) in our view are neither consistent (How do you evaluate a co-product that is an input material to another product? Double counting) nor convincing.

### **Accounting for GHG emissions**

We are strictly against taking into account any kind of offset projects. In the closed accounting system we are thinking of, this would make no sense. Rather it would add further complexity and reduce the transparency of the system. On top of that there are a lot of unsolved issues around offset projects, one of which is the displacement argument. If at all, offset projects should be handled outside the (core) GHG accounting system, e.g. within the framework of the more broadly defined product labelling for consumers that could include the entire downstream GHG impact of a product (as discussed above). Clearly, one should avoid opening up the core system for PR- or product-marketing related ideas that companies may increasingly think about due to the rise of the climate change topic in public awareness. This is certainly legitimate, but should not be mixed with the purpose of the system we talk about here.

### **Reporting product-level emissions**

We agree that the reporting format should be flexible and dependent on the audience and the expected use. With regard to the core accounting system it would certainly be of interest for the financial market/analyst not only to see the full ‘cradle-to-gate’ impact at the product level, but also to see the GHG inventory contributions from the different stages of the production cycle. This, for example, allows insights into how well a company manages its supply chain relative to others, and how efficient a company’s own production processes are relative to those of others.

### **GHG intensity metric**

The premier goal of a GHG intensity matrix should be to maximize the comparability of results. We doubt that this is achieved with the metric proposed by CC. In particular, in our view it is of limited value to measure GHG intensity relative to a national mean only. One reason for this is that investors do not have a national GDP perspective, when making investment decisions. At least in the mid- to large cap area investment decisions are made from a global perspective, even if they have the usual ‘home bias’. A company is benchmarked against a global or at least regional (e.g. European) peer group. Secondly, we doubt that it is meaningful to relate emissions to the national retail value of a product. It is, for example, not clear how to deal with currency fluctuations, particularly with wide swings away from purchasing power parity as we are currently observing in the US\$/euro relationship. Why should the GHG inventory of an imported car depend on the Forex market and why should this be good guidance for investors and consumers to make informed investment/purchasing decisions?

We agree that it would be nice, at least theoretically, to combine GHG inventories with a measure of economic well-being in order to compare products across the board. There are, however, two more reasons that have led us to reject the idea entirely. First of all, the intensity concept lacks practical relevance. Most of the products are neither direct nor indirect substitutes for each other. Hence, the value-added in comparing them is very limited anyway. Secondly, and more importantly, we believe that there should be no trade-off implied between the dollar value of a product and its GHG emissions.

The motto should not be “as long as the relative price is high enough, a product can emit more CO<sub>2</sub>”. Why should an iPod, for example, have a structural advantage vis-à-vis a peer product group, just because of image and branding? It would simply not set the right incentives if consumers were being given a positive impression of these kinds of premium-priced products, despite their fundamental GHG inventories pointing to the opposite conclusion. And also, the problem of imported goods discussed above kicks in once again at this point. Why, for example, should imported goods from China be disadvantaged because of their lower production costs (under ceteris paribus conditions of course)? There is no justification for this. In conclusion we would recommend benchmarking product-level GHG inventories within product peer groups only, i.e. without monetary values attached to them. This would also allow some kind of intensity measure – for example by introducing a single metric that shows the GHG inventory of a product as a multiple of its respective product class mean. This would give clear and unbiased signals to consumers for making informed purchasing decisions, and to investors for assessing the carbon risks and opportunities of a company’s product portfolio.

### **Carbon Added Reporting**

We say yes to this concept. We’ve argued in favour of VAT-type structure throughout this document – and we do not want to repeat all the arguments here. Nevertheless, we want to list some of its advantages once again, before we wrap up:

- A Carbon Added Reporting system could more or less be “copied” from the VAT accounting system, including all international agreements.
- In such a system any double counting would be avoided and no complicated top-down supply chain considerations by top of the pyramid companies would be necessary.
- Measurement and data quality problems would be reduced automatically resulting from the structure itself (e.g. high share of primary data). Hence, a VAT-type system would be a good basis for a possible future carbon tax (or emission rights allocations).

### **Wrapping up**

‘Toward a product-level standard...’ is an excellent and comprehensive collection of aspects and issues around the idea of introducing a GHG accounting standard at the product level – an idea that finds our full support. However, CC’s paper stops at a preliminary level which may be appropriate for the time being since the overall discussion is still at an early stage. What is needed as a next step is (1) a clear definition of the target group(s) and (2) a definitive proposal for implementing such a model, which requires making several value judgments along the way. One of the decisions that has to be made is about the accounting method – which is at the nexus of many methodology-related issues that need to be addressed.

Within CC’s proposal the concept of Carbon Added Reporting only receives comparatively little attention (just a small paragraph at the end). We believe it deserves much more room because it is probably the only way to make the system work in a manner that enables and encourages financial analysts to work with the results. Another issue that is underweight in the paper is the question whether a GHG inventory standard should be voluntary or mandatory. Based on the spirit of the overall proposal, we assume that CC is in favour of a voluntary standard that tries to coordinate between the GHG Protocol Standard of the WRI/WBCSD and ISO standards – and maybe one could also add the GRI to that list. In our view, this should only be seen as a first step during which such a system could be tested and improved. Ultimately, Carbon Added Reporting will only work if it is a mandatory part of generally accepted, international accounting rules (e.g. as a part of the post-Kyoto process). It’s our firm conviction that such a system would be an enormous step forward to give the “fight against climate change” the right structures to work properly and efficiently. The “inconvenient truth”, however, is that the likelihood of a multilateral agreement for its adoption is low. But does that mean that we should go for the (in our view) second best solution, i.e. a system that remains at the voluntary level but tries to encompass a full life cycle assessment? The hope would be that corporate leaders would embrace such a system and set a de facto standard by their best practice behaviour. We have our doubts that this works, as many past examples have shown. The risk is that the big companies

would use such a system as a corporate communication tool in the first place and that the financial markets in general and analysts in particular would not look at it at all. An ambitious but voluntary system would probably be not much more than another nice academic exercise without practical relevance. The topic is too serious to invest too much time and intellectual efforts in such an exercise.

Dr Hendrik Garz  
Head of Extra-Financial Research  
WestLB AG