

USE OF SOLD PRODUCTS : ASSESSING THEIR GHG EMISSIONS

Sylvain Borie - sylvain.borie@carbone4.com

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Is it necessary to report emissions associated with the use of goods sold ?

If so, what is the right method to use ?

How to go further with your carbon reporting ?

TABLE OF CONTENTS

Since 21 August 2016¹, companies falling under article 225 of the Commercial Code must report their significant emissions of greenhouse gases (GHG) through their value chain. In the enabling decree for this law, particular stress was placed on the specific emissions category "emissions associated with the use of a company's products". This emissions item raises a number of methodological questions, especially concerning the scope of the emissions to be taken into account.

With this publication, Carbone 4 seeks to share its expertise by shedding some light on this critically important issue.

Happy reading!

INTRODUCTION	3
1	
ESTABLISHING A FRAMEWORK FOR SOLD PRODUCT USAGE EMISSIONS CALCULATION	4
1.1_ Does my company sell finished or intermediate products?	4
1.2_ Do my intermediate products have few outputs or a great many possible applications?	4
1.3_ Is my product directly or indirectly causing usage emissions?	5
1.4_ Estimating how significant a company's emissions are	7
1.5_ Summary	8
2	
CALCULATING A COMPANY'S SOLD PRODUCTS USAGE EMISSIONS	10
2.1_ For finished products	10
2.2_ For intermediate products	10
3	
GREENHOUSE GAS EMISSIONS, LIABILITY AND COMMUNICATIONS	12
ASSESSMENT	14
BIBLIOGRAPHY	16

¹ Date of publication of the enabling decree for article 173-IV of the Energy Transition Law. This stipulates reporting on "significant direct and indirect emission sources, throughout the value chain of a company, i.e. including both upstream and downstream components of its activity".

INTRO

The calculation of sold products usage emissions is a key carbon accounting item. For many industries, this emission sources can be by far the highest, way ahead of the company's scope 1 and 2 items.

Quantifying product usage emissions requires the creation of an indicator to measure the resilience of a company's products regarding the transition to a low-carbon economy. The regulations, duties and requirements of buyers are increasingly moving towards low-carbon products. Identifying and measuring this business risk is therefore of strategic importance for companies.

To calculate this item, companies are required to create standard usage scenarios for their products during their lifespan. Depending on the type and diversity of products sold by the company this exercise may be particularly arduous for the uninitiated. For example, here are a few cases in which the calculation of this item requires in-depth methodological thinking :

- If a company is an automobile parts manufacturer, how can its products' emissions be calculated given that they are merely constituent parts of an energy-consuming product ?
- If a company is a steelmaker, with a high number of outputs for its products, can relevant usage scenarios be explicitly created ?
- Does a consumer retail company have to take into account the cooking of the food products sold or even the manufacture and electricity usage of freezers, without which the sale of frozen goods would not be possible ?

Given the huge diversity of possible scenarios, it seems necessary to give a nomenclature that is unique to this item, in line with carbon accounting regulations currently in effect.

The aim of this note is to propose one to you, based on the following two questions :

- Should this emissions item be taken into account for your company ?
- If so, which methodological rules should be considered in this regard ?

The vision that we set out is consistent with carbon accounting standards : ISO 14069, the GHG Protocol, and article 75 of the French Environmental Code.

1

ESTABLISHING A FRAMEWORK FOR SOLD PRODUCT USAGE EMISSIONS CALCULATION

1.1 DOES MY COMPANY SELL FINISHED OR INTERMEDIATE PRODUCTS ?

First of all, it must be determined whether the sold product – or the group of sold products – is a finished or an “intermediate” product.

“An intermediate product is a product that will not be directly used in its current form.”

Example: a drill is a finished product, whereas a motor or engine is an intermediate product since it must be incorporated into another product prior to being used (e.g.: a drill, a car, etc.).

Depending on the product type sold, the analytical and calculation methods will differ significantly.

1.2 DO MY INTERMEDIATE PRODUCTS HAVE FEW OUTPUTS OR A GREAT MANY POSSIBLE APPLICATIONS ?

The following stage consists in establishing the usage type for the product in question, either explicitly if the product has a limited number of potential uses, or statistically if a very high number of possible uses exists.

Generally speaking, the more downstream a company is located in the value chain, the easier it will be to determine the outputs for its products (car, washing machine, etc.).

Conversely, for certain intermediate products that are located by their very nature upstream of the manufacturing supply chain, a very high number of final outputs are possible, and it will be difficult to establish exactly how a given product will be used.



Example: The products sold by steelmakers have a very significant number of possible uses from the steel used to manufacture an oil platform to the one sold for the manufacture of coat-hangers. All these different types of use obviously result in vastly different usage emissions.

In such cases, it is unthinkable to determine a usage scenario for each output. An initial way of proceeding would therefore be to consider that some emissions are too far downstream in the chain to be taken into account. The GHG Protocol², for instance, considers that it is not mandatory for a company to report these emissions if it is impossible to determine usage scenarios for its products.

Although in this case it is not necessary to calculate the emissions associated with this item to comply with regulations, Carbone 4 recommends conducting a sector-specific analysis to estimate a rough estimate of their importance.

In fact, when one considers that carbon accounting is first and foremost about **the dependency of an activity on greenhouse gas emissions**, or about **its exposure to transition risks**, it would be a shame to carry out the exercise whilst missing the main source of transition risk because it can only be viewed as a statistic.

Carbone 4 therefore recommends the conducting of a study that focuses more on the sector within which the product will be used, rather than the type of use of a sold product. Indeed, if the outputs for my product are in high-emissions sectors, the transition risks will be higher than if the product were to be sold in low-emissions sectors.

1.3 IS MY PRODUCT DIRECTLY OR INDIRECTLY CAUSING USAGE EMISSIONS ?

After determining the usages for a company's products using a statistical approach when it is needed, all the emissions associated with these products can be calculated

These must be **differenciated depending on whether they are directly or indirectly caused by usage of the product.**

² Corporate Value Chain - Accounting and Reporting Standard – p60

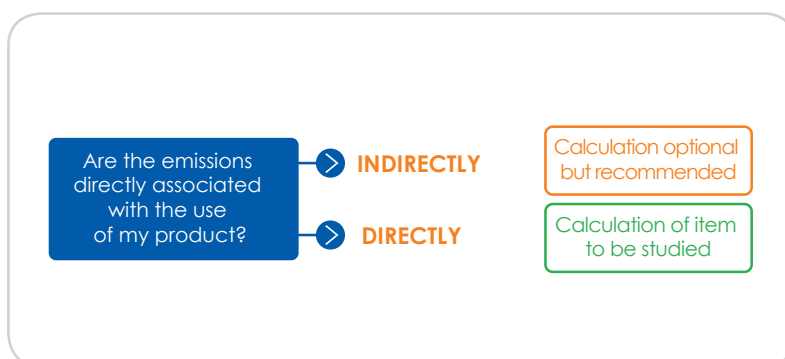


Example 1 : For a business that sells cars, the emissions from the combustion of the consumed fuel will be directly linked to vehicle usage, whereas all the emissions needed in order to be able to use that fuel (oil extraction, refining, transportation, etc.) are considered indirect.

Example 2 : A parts manufacturer selling engines for motor vehicles **will have the same type of emissions as the automobile manufacturer** (direct fuel combustion emissions and indirect fuel preparation emissions) since the part inside the vehicle that consumes energy is the engine.

Example 3 : A bumper manufacturer **will have as indirect emissions those of manufacture and the fuel combustion emissions from the fitted vehicle** as the bumpers do not directly consume energy within the vehicle.

This distinction is crucial, as the GHG Protocol specifies that **although the reporting of direct emissions is compulsory, indirect emissions reporting is optional** (but highly recommended where significant). Therefore, this distinction better identifies the limits of a company's reporting.



1.4 ESTIMATING HOW SIGNIFICANT A COMPANY'S EMISSIONS ARE

The analysis of significance³ a priori seems vital in order to determine the scope of reporting. The GHG Protocol concurs with the regulations of article 173 on this point insofar as emission sources that are not significant do not have to be reported.

At this stage, simple calculations by order of magnitude are sufficient to prove that an item is not significant.

Example 1 : The emissions generated by the manufacture of a smartphone are approximatively of 60 kg CO₂ (metallurgy, chemistry, electronic components, intermediary transportation, etc.). Starting out from a simplified scenario of one daily charge of the battery and a lifespan of two years, the use of the phone will emit in total less than 1 kg CO₂ (generation of electricity used to charge the battery). In view of its manufacture, one may therefore take the view that the use of a smartphone will give rise to "non-significant" emissions.

Example 2 : The emissions created by the manufacture of a car are almost 6 tonnes of CO₂. Starting out from a simplified scenario of a ten-year lifespan for 15,000 km driven per annum and with fuel emissions of around 150 g CO₂/km, it may be determined that use of the car will emit 18 tonnes of CO₂ for its entire lifespan. This item is therefore extremely significant and must imperatively be taken into account. Moreover, within this total, extraction and refining emissions account for around 3 tonnes of CO₂ over the lifespan and are therefore an example of indirect emissions associated with use of the product that ought to be taken into account given their level of significance.

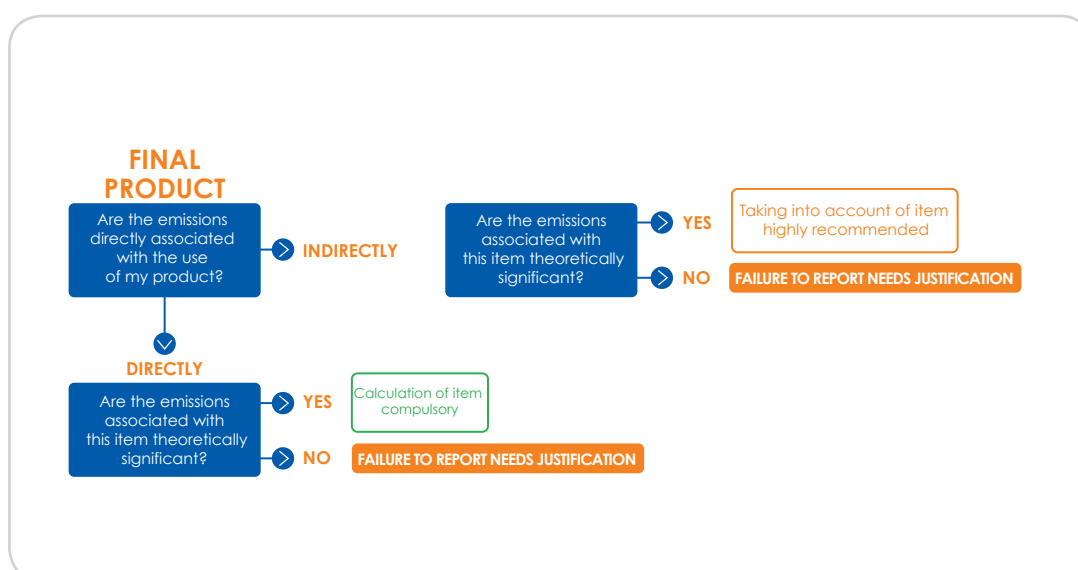
³ It is important to specify that no official threshold exists to determine whether an item is significant or not. The concept of significance has therefore been left open to interpretation by statutes and regulations.

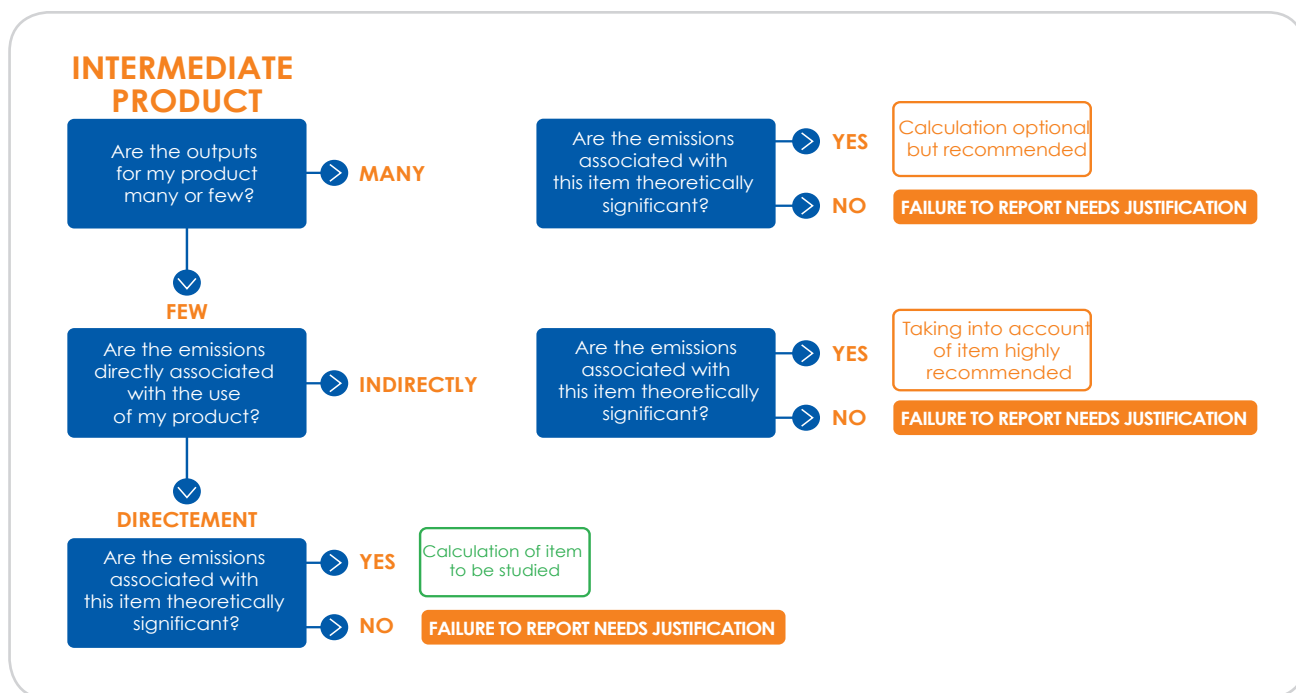
1.5 SUMMARY

The perimeter for emissions calculation is now clearly defined for the product concerned. It will therefore depend on four factors :

- Product type (final or intermediate),
- Type of output (few or many),
- Origin of emissions (directly or indirectly emitted by the product),
- The theoretical level of significance of these emissions.

The process of determining the scope for calculation of emissions associated with the use of sold products is therefore as follows :





It is then possible to repeat the process for each product or major product group that the company sells.

Now that we know how to determine whether or not this item must be taken into account, let's turn to how the calculation is made.

2

CALCULATING THE USAGE EMISSIONS OF A COMPANY'S SOLD PRODUCTS

2.1 FOR FINISHED PRODUCTS

As set out above, for finished products, usage emissions are calculated through the implementation of standard product usage scenarios. A standard scenario is based on three parameters :

- The product's lifespan,
- Frequency (or duration) of use of the product,
- The emissions associated with a single use of the product (be these direct or indirect).



Example : A car's lifespan is typically 10 years, the usage frequency is 15,000 km/year and usage-associated emissions range between 100 and 300 grammes of CO₂ per km depending on the model in question. For a range of cars, a representative value may be used of the average for vehicles sold in a given year.

2.2 FOR INTERMEDIATE PRODUCTS

For intermediate products, a further step must be added to the calculation. In fact, the seller of intermediate products is just one of the contributors to the manufacture of the finished product, and it will therefore legitimately be argued that the seller should not account for all of the emissions associated with the use of the finished product.

Thus, an allocation rule needs to be used to apportion – as a percentage – the usage emissions of the finished product between the various (suppliers of) components that were used to manufacture the product. All the methodology guides recommend the application of such a rule.



There are a number of possible allocation methods. These may be physical (on a prorata basis for the weights of the various intermediate products provided, their volume, the energy used in their manufacture, their surface area, etc.) or economic (on a prorata basis in terms of their price, added value, etc.). As often as possible, the use of physical allocation rules is recommended over economic rules, as these prevent variation in results for products subject to price volatility.

Example : For an automobile parts manufacturer, if one decided to apply a mass-based allocation rule, then the portion to be allocated to the part would correspond to the weight of the part in relation to the total weight of the fitted vehicle.

NOTE 1 :

By its very nature, the allocation method determines the seller's reduction action: a prorata allocation method based on the mass of each component will give an advantage to those that are lighter, whilst a prorata added-value-based allocation method will more accurately reflect economic dependency, but will not incentivise the manufacturer to sell more cheaply !

NOTE 2 :

For both finished and intermediate products, certain indirect emissions can also be treated using an additional allocation rule. This is linked to the fact that emissions are needed to enable the product to be used but are not directly linked to the product usage phase.

Example : For a frozen product, one must take into account emissions associated with both cooking and freezing of the product. These emissions, which are directly associated with the usage period of the product although not directly emitted by the product in question, are treated as previously shown. However, it would also be possible (and recommended if the emissions are significant) to take into account emissions linked to manufacture of the freezer or oven. Indeed, these emissions are necessary for the usage phase of the product even though they are located upstream of it. In this case it seems appropriate to have an allocation rule based on the total energy consumed by these products during their lifespans.

3

GREENHOUSE GAS EMISSIONS, LIABILITY AND COMMUNICATION

Since usage emissions from sold products are part of a company's emission inventory, it should be kept in mind that the keyword is “dependency” and not “liability”. In legal terms, a company is not currently “liable” for emissions resulting from the use of its products, although there are exceptions (for example usage emissions for cars sold in the European Union). However, a company is dependent on these emissions in the sense that were they to become either partially or totally impossible due to regulatory restrictions or local or regional unavailability of the necessary fossil fuel energy, sales of the company would be impacted.

The standpoint from which sold product usage emissions should be calculated consists in evaluating upstream dependency on greenhouse gases in order to assess transition risks, and implement a reduction action plan to best avoid these risks.

The concept of liability is more present in another indicator complementary to the carbon footprint : avoided product emissions.


Calculating the avoided emissions of a product consists in comparing the CO₂ emissions volume as it currently stands (with the product) with a fictitious reference scenario, in which the product does not exist.

Example : The very latest vacuum cleaner uses half the energy during usage than the previous generation of vacuum cleaners. So, if the product did not exist, then the customer would use a less efficient vacuum cleaner that would lead to greater CO₂ emissions. The emissions avoided by this vacuum cleaner can therefore be calculated by comparing the emissions that it leads to with those generated by the previous generation of vacuum cleaners with identical usage⁴.

To calculate the contribution of a product to the energy transition, thought must be given to the emissions avoided by the product by calculating and ultimately comparing them – although never adding them – to generated emissions.

Example : Let's imagine a start/stop system manufacturer. If he wishes to calculate his significant emission sources, he will need to think about how his products are used because **they are incorporated into finished products that use CO₂**.

⁴ This is a greatly simplified example for illustrative purposes. To rigorously calculate the emissions avoided by this vacuum cleaner, one would obviously need to look at the entire life cycle of the product, and not just at its usage stage. Therefore, if the product is more difficult to recycle and generates greater CO₂ emissions during its manufacture, then the avoided emissions will be lower, or even zero.

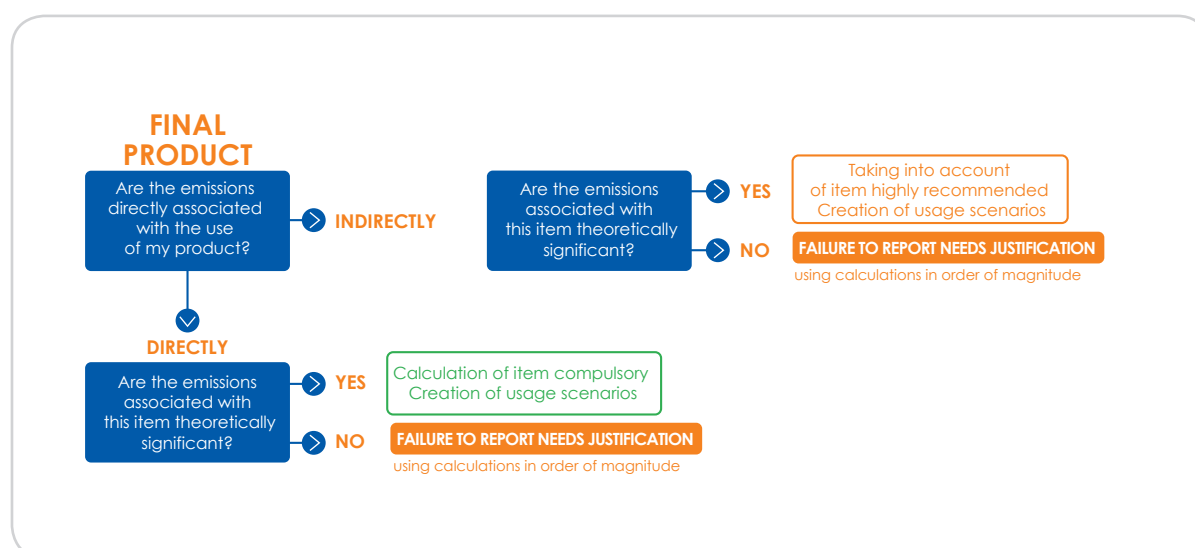
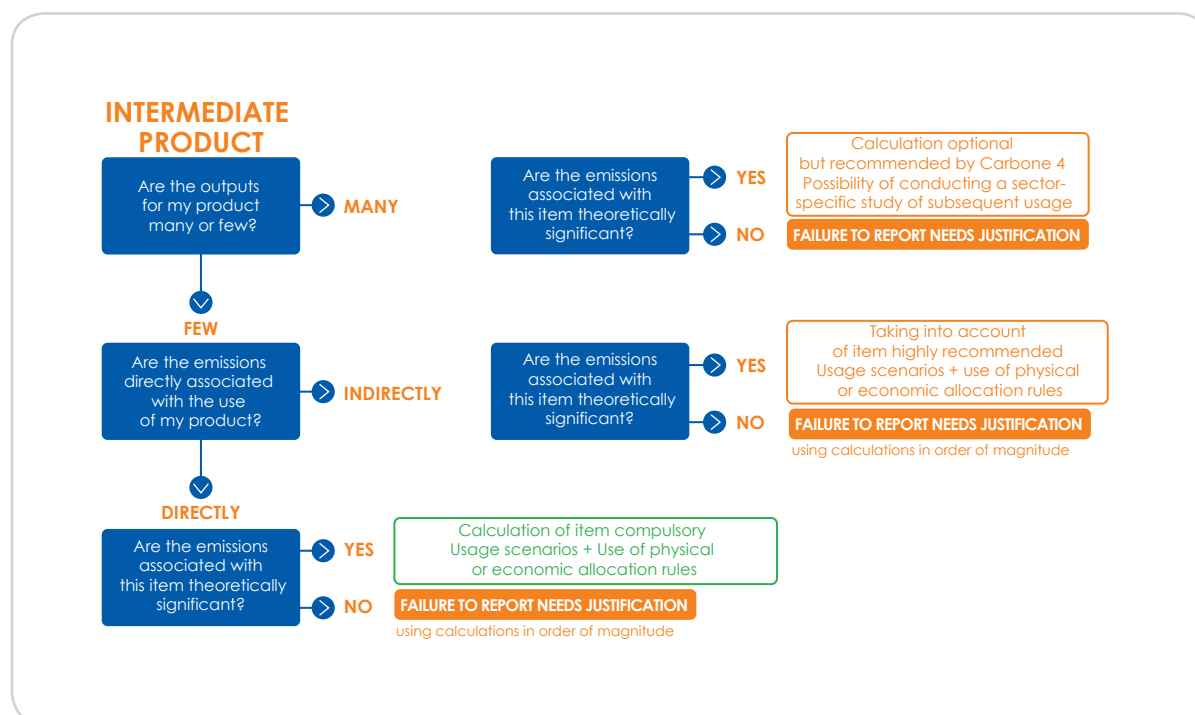


Indeed, although vehicle emissions are not the liability of the manufacturer, they are present upstream of its value chain and must be taken into account when estimating the carbon dependency (and consequently the transition risks) of the company.

Furthermore, since the start/stop system reduces the emissions of a fitted vehicle, the manufacturer will also be able to calculate emissions avoided by this product, and in doing so will be able to highlight its contribution to the energy transition.

ASSESSMENT

The procedure to follow for the accounting of sold product usage emissions is as follows :



Now bound by a regulatory framework, the calculation of a company's significant GHG emission sources is the first crucial step in taking into account the energy transition and climate change in a company's business strategy.

To completely understand the transition risks and also highlight a company's contribution to

the energy transition, this exercise merits being supplemented by the design of an action plan, a climate change vulnerability study (both physical and transition risks) and calculation of the avoided emissions of a company's products.

These factors may accordingly lead to strategic reflection by your company and also be published in your annual reports, to provide information to investors and customers who are ever more attentive to this issue.



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