

**Embedding Energy Management (EEM)**

**Practice guide - Module 2: Carbon inventory and supply chain impacts**

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Contents

[1 Purpose of this guide 1](#_Toc359317469)

[2 Who will benefit from this guide? 1](#_Toc359317470)

[3 Business drivers creating focus on carbon and energy management 2](#_Toc359317471)

[4 Carbon management practices for business 2](#_Toc359317472)

[4.1 Case studies 3](#_Toc359317473)

[4.2 Practice steps 5](#_Toc359317474)

[4.3 Supporting tools and templates related to the practice steps 8](#_Toc359317475)

[4.4 Additional websites for reference /general knowledge 9](#_Toc359317476)

# Purpose of this guide

Welcome to the practice guide focused on managing carbon and understanding its impacts on your supply chain.

This module will demonstrate how to work with your business’ carbon footprint (also known as a carbon inventory) and related information to address issues such as carbon labelling, pass-through costs in the supply chain, carbon reduction targets, energy efficiency assessments and investment decisions.

Using this guide, your business leaders can access tools and case studies to initiate or refresh their carbon management plans. In particular, the team will be better equipped to:

* Respond to basic carbon footprint data and emerging advice on supply chain management.
* Identify business risks and opportunities associated with these trends.
* Understand the broader business drivers for investing in better carbon emissions reduction solutions.
* Begin to develop or refresh energy improvement goals, policies and programs.

This practice guide is supported by information and tools in the Embedding Energy Management (EEM) workforce development kit. Relevant tools are highlighted in bold throughout the practice guide. The EEM kit is available from the resources section at <http://www.sustainabilityskills.net.au>**.**

# Who will benefit from this guide?

General Managers, Procurement and Supply Chain Managers, Site Engineers and Energy Champions who have the desire to learn more about integrating resource management intelligence into their business plans.

# Business drivers creating focus on carbon and energy management

Business decisions are informed by accurate data and contextual information. The introduction of a price on carbon and the requirement to report emissions either through mandatory or voluntary reporting programs, requires a business to understand the emissions they are responsible for, either directly or indirectly, and the costs incurred.Understanding your emmissions also gives you the confidence to respond to questions from your customers and your suppliers.

Businesses need to develop a systematic response in order to:

1. Manage the risks to business profitability from the pass-through of carbon costs up and down the supply chain.
2. Be prepared to capitalise on opportunities to lower costs and be more competitive.
3. Be prepared to meet the demands of customers who may expect your participation in new, voluntary or mandatory carbon reporting regimes.

# Carbon management practices for business

This guide presents six key practices that will help a business to better understand the impacts of carbon costs, at a site or company level, as well as up and down the supply chain. It will demonstrate how this knowledge can be used to identify new opportunities and cost savings which can be integrated into the business planning process. These six practices are:

1. Inform business planning using carbon data for your site and relevant industry research.
2. Communicate intent and investigate with engaged stakeholders to develop carbon inventories and reports.
3. Use carbon inventories and reports to better understand energy use.
4. Identify opportunities and risks within the supply chain.
5. Facilitate implementation of carbon planning outcomes.
6. Monitor and investigate progress of plans.

## Case studies

**Ronson Torsion Bars**

The Ronson case demonstrates that energy efficiency contributes to maintaining a competitive position in the market. At Ronson energy costs have risen dramatically over the past year. In addition to this, since 1 July 2012 they are also paying an indirect carbon cost through the increased cost of production inputs.

Over the past few years the energy-related costs of producing a torsion bar for the car industry have risen from around 40 cents per bar, to around $1.40 per bar and this cost is expected to continue to rise. The average selling price of a bar, however, is only around $10. Not only has this been the same for a number of years, Ronson is also under pressure (for example from cheaper overseas producers) to lower their selling price further. They are therefore unable to pass this cost on to their customers.

These increased costs, including a margin for carbon, have forced profit margins at Ronson to come under severe pressure, requiring them to look for cost reductions in all areas.

All management at Ronson participated in the EEM energy planning forum and discussed the impacts of carbon costs, the site’s carbon emissions and energy efficiency on their margins.

Whilst the team admitted there was little they could do about carbon costs being passed through from suppliers they agreed that the rising cost of energy and carbon - both gas and electricity (forecast at around 10% per year) - could be offset by implementing low-cost energy savings opportunities, such as an air leaks program and more frequent attention to burner tuning in the heat treatment ovens.

The quality manager agreed there would also be potential for improved throughput with better burner efficiency.

The team left the forum with a deeper appreciation of the positive effect these maintenance initiatives would have on profit margins, and a commitment to develop an energy efficiency program to address energy waste, carbon emissions and offset cost increases, including the cost of carbon.

**Responding to customer demands**

In response to environmental concerns and the growing market demand for greener products and brand differentiation, Coca-Cola introduced its new ‘PlantBottle’™ at the Climate Change Summit in Copenhagen in 2010. Contrary to what the name might imply, the bottle itself is made entirely out of PET plastic, although 30% of the inputs to make the PET comes from sugar cane-based materials.

This announcement came after PepsiCo’s introduction of its plant-based compostable bag made for SunChips snacks. Research sponsored by Coca-Cola suggested that the new PlantBottle™ has the potential for a much smaller carbon footprint than their previous bottles (12-19% smaller carbon footprint, according to an Imperial College London LCA).

While some CPG companies have cast doubts on whether or not the PlantBottle™ is actually better than the current 100% hydrocarbon derived bottles it is interesting to note that PepsiCo quickly announced its own plans to introduce a 100% bio-based PET bottle in the near future.

Coca-Cola knows that it needs to listen to its customers around the globe and they are beginning to understand that alternatives to traditional hydrocarbon (oil and natural gas) based products need to be developed.

Given the scale of Coca-Cola’s global use of PET it quickly decided not wait for the market to develop these products. It chose to work with its supply chain partners to drive the development, to learn how to improve the economics and to minimise the carbon footprint of this new PET product.

Nestle has also continued to pursue packaging reductions while PepsiCo has a catch-up strategy.

<http://responsiblebusiness.haas.berkeley.edu/CRB_ResearchReport_FINAL.pdf>

## Practice steps

| Practice steps | Description |
| --- | --- |
| 1. **Conduct industry research into carbon management trends and understand your site’s current carbon emissions levels and costs.**
 | To best inform business planning, research the carbon issues related to your industry. This research should include trends in environmental compliance, the cost of emissions from your energy sources, demands from customers for green credentials, as well as carbon markets and the price of offsets.You should also understand the carbon management challenges specific to your site. The following tools can help.* An **introductory carbon presentation** that will outline the terminology and concepts used when discussing carbon emissions within a business and its supply chain. It will also describe domestic and international voluntary and compliance regimes to which business is increasingly accountable.
* Develop a **high-level carbon inventory** (**What’s my footprint?**)that will enable you (within an order of magnitude) to determine the level of risk carbon represents to your business.
 |
| 1. **Communicate and further investigate the impacts of your site’s carbon emmissions in your supply chain.**
 | Present the research to your managment team via a presentation/workshop. The intention of this workshop is to develop an understanding of the level of risk and a sense of the budget required to manage that risk. The introductory carbon presentation can incorporate your business’ or site’s carbon inventory to inform this discussion.  |
| 1. **Identify opportunities and risks within the supply chain.**
 | Identify vulnerabilities and opportunities within the supply chain through an analysis that includes the development of a risk/opportunities matrix. This analysis should consider upstream vulnerabilities, such as pass-through costs, impacting profitability, and downstream vulnerabilities, such as the likelihood of more onerous emissions reporting requirements.To assist in determining your level of awareness of these opportunities and risks, download the **carbon disclosure project supplier information** request form and complete the risks and opportunities section. |
| 1. **Conduct further research into supply chain issues as they arise in the planning process.**
 | Steps 2 and 3 above should result in management support and agreement for more detailed work. This work could include:* Completion of a detailed greenhouse gas inventory of your business or site, that is compliant with the requirements of the National Greenhouse and Energy Reporting Scheme (note, this can draw on your [energy baseline](http://www.energetics.com.au/services/training-programs/customised-capacity-building/carbon-proof/module-1-to-4-baseline-tool-e.zip) for all or part of the inputs to the development of your carbon inventory).
* Assessment of indirect greenhouse gas emissions that is compliant with Scope 3 reporting requirements under the carbon disclosure project. This information on emissions sources could be used to carry out a lifecycle analysis, contribute to work to become carbon neutral or to address business issues. such as carbon labelling.

NB: It is likely that you will need to obtain expert advice to complete this step for the first time at least. |
| 1. **Facilitate implementation of tasks that will manage the risks and exploit the business opportunities.**
 | Those risks and opportunities identified as critical in the above analysis should now be managed through the development of a carbon inventory and supply chain management plan within your overall [EEM](http://www.energetics.com.au/services/training-programs/customised-capacity-building/carbon-proof/carbon-proof-plan-2.doc) plan (see energy plan template and sample energy plans). The plan should include components, such as: * Base year emissions and forecast emissions
* Identification of your carbon footprint, and supply chain risks and opportunities (which should be ranked)
* Discussion of a strategy aimed at managing risks and opportunities
* Statement of reduction targets, goals and vision of what can be achieved through the above management strategy.
 |
| 1. **Monitor and investigate progress of plans.**
 | Periodic monitoring and quality control measures should also be considered so that the above process remains relevant and up to date, including: * Review of corporate structure
* Review of supply chain (inputs and outputs)
* Review of risks and opportunities identified within the supply chain
* Review of actions undertaken against those planned
* Revision of greenhouse gas inventory to ensure all conversation factors are correct and all inputs and outputs are accurate and up to date
* Collection of data and updating of spreadsheet
* Reporting of greenhouse gas impacts and of achievement against targets and action plan
* Review of the plan itself.

The results of such investigations, in addition to presentation of aspects of your carbon plan, should be communicated to stakeholders on a regular basis. This will allow issues to be addressed and opportunities to be acted on, as they arise. |

## Supporting tools and templates related to the practice steps

The EEM tools are available from [www.sustainabilityskills.net.au](http://www.sustainabilityskills.net.au)

| Tool or template | This tool is useful if… |
| --- | --- |
| **Carbon introduction presentation** | You would like to understand the basic concepts and terminology used when discussing carbon.This PowerPoint presentation is augmented with blank slides to enter the site’s or business’ high-level carbon inventory.  |
| **Carbon inventory facilitator runsheet** **Carbon introduction presentation****Sample energy plans** | You require a structured, facilitated process to present the carbon footprint aspects impacting your business, and to prioritise the risks and opportunities for your business arising from the emerging costs for carbon and supply chain demands.  |
| **What’s my footprint?**  | You would like to do a high-level carbon inventory to begin to understand your carbon footprint and the level of risk it presents to your organisation.  |
| **Carbon disclosure project supplier information request** | You would like to initiate identification of carbon risks within your supply chain. The key output here is a risk register. |

## Additional websites for reference /general knowledge

The following websites are recommended for background knowledge and further reference.

| Website link | This website is useful because… |
| --- | --- |
| **United Nations Framework Convention on Climate Change (UNFCCC)**<http://unfccc.int>  | It provides all official documentation pertaining to the international treaty of the United Nations Framework Convention on Climate Change, the accompanying Kyoto Protocol and developed instruments. The website also provides documentation arising from interim conferences and meetings of the parties to the Treaty and Protocol. |
| **International Panel on Climate Change (IPCC)**<http://www.ipcc.ch/>  | It is the source of scientific documents utilised as the background to policy making by most governments. The IPCC assesses the scientific, technical and socioeconomic information relevant for the understanding of the risk of human-induced climate change. |
| **Department of Climate Change and Energy Efficiency**<http://www.climatechange.gov.au/>  | It provides information relating to the federal government’s international obligations and actions in tackling climate change and provides details about the policies and legislation that effect businesses.It also provides links to other websites, such as the Clean Energy Regulator (for the National Greenhouse Energy Reporting (NGER) Act) and the Clean Energy Future website <http://www.cleanenergyfuture.gov.au/>.The site also provides summary information on the science of climate change and tools to assist different sectors of the economy. |
| **Greenhouse Gas Protocol**<http://www.ghgprotocol.org/>  | It is the most widely used international accounting tool for government and business leaders to understand, quantify and manage greenhouse gas emissions. It provides the accounting framework for nearly every greenhouse gas standard and program in the world, including Australia’s NGER, as well as hundreds of greenhouse gas inventories prepared by individual companies. |
| **Carbon Disclosure Project (CDP)**<https://www.cdproject.net/en-US/Pages/HomePage.aspx>  | It operates the only global climate change reporting system and allows data from some 2,500 organisations in 60 countries to be made available to a wide audience, including institutional investors, corporations, policymakers and their advisors, public sector organisations, government bodies, academics and the public. The CDP enables those organisations to measure and disclose their greenhouse gas emissions and climate change strategies, in order to set reduction targets and make performance improvements. Recent additions to CDP include CDP Water and CDP Supply Chain <https://www.cdproject.net/en-US/Programmes/Pages/CDP-Supply-Chain.aspx>. The ‘CDP Supplier Information Request for SME form’ can be found here that you can use to seek supplier information.  |
| **National Greenhouse and Energy Reporting** <http://www.cleanenergyregulator.gov.au/National-Greenhouse-and-Energy-Reporting/Pages/default.aspx> | This Clean Energy Regulator webpage provides resources and tools aimed at assisting businesses to comply with the NGER legislation and regulations. The tools are particularly useful, and include a generic calculator in addition to more specific ones for wastewater and solid waste disposal. |
| **World Business Council for Sustainable Development – Energy and Climate**<http://www.wbcsd.org/home.aspx>  | It is a CEO-led, global association of some 200 companies dealing exclusively with business and sustainable development.The Council provides a platform for companies to explore sustainable development, share knowledge, experiences and best practices. The Council acts as an advocate for business on these issues in a variety of forums, working with governments, non-governmental and intergovernmental organisations. |