

Green Sigma

How to optimise your carbon management through Green Sigma

What's the carbon management issue?

Increasing regulatory pressures, the focus on corporate social responsibility, and rising energy costs are forcing companies to reassess the impact of environmental issues and energy use on their business bottom line.

All over the world, new national and regional laws relating to carbon emissions and other environmental issues are seriously going to affect how companies operate in the future.

As a result, the market for green initiatives is growing exponentially as businesses and consumers become environmentally aware. In the future, demand for energy is only expected to grow, outpacing supply. The carbon footprint associated with this demand has a value, and offers growing economic incentives for companies to manage their carbon output more efficiently. These incentives will grow with the increasing maturity of 'cap and trade' systems around the world.

As a company which has been committed for more than three decades to protecting the environment, IBM is presenting Green Sigma* in response to these drivers. This is a new solution offering, which merges IBM's deep expertise in Lean Six Sigma with other robust green initiatives, resources and intellectual capital across the company.



Defining key performance indicators (kpis), and setting up suitably accurate monitoring capabilities in the targeted green focus area is key to assessing an organisation's current position. **"If you can't measure it, you can't manage it."**

Once kpi monitoring is in place, ongoing control of the operational environment will not only ensure continued compliance, but will also act as a launchpad for future process improvements and cost savings initiatives. For example, having accurate and measurable kpi data readily available will make actual gains easy to demonstrate.

In summary, the value of improving carbon management and pursuing a Green Sigma solution includes:

- *Managing and reducing the company's carbon footprint*
- *Improving shareholder value by reducing the company's overall energy consumption and associated costs*

- *Establishing ongoing control and management of carbon footprint through the use of advanced statistical techniques and tracking of key carbon performance indicators on a portal-based Carbon Dashboard*
- *Increasing profit opportunity through potential carbon trading and by catalysing other process improvements.*

What's the solution?

Green Sigma leverages the content of Lean Six Sigma tailored to achieve specific environmental and business goals, resulting in improved ROI. Some specific differences between Green Sigma and Lean Six Sigma include:

- *Green key performance indicators related to both direct and indirect emissions : energy usage, business mileage, logistics carbon footprinting, vendor management, and compliance*
- *Carbon management dashboard based on green key performance indicators tailored to each client*

- *Carbon value stream mapping and other applied statistical techniques to optimise energy performance and achieve cost reduction and/or process improvements*
- *Voice of the Environment – represents the growing prevalence of environmental drivers not captured in Voice of the Customer or Process.*

How to get started?

Green Sigma engagements begin with an assessment tool such as carbon management value stream analysis, component business modelling, or energy assessment reviews. Once a baseline is established, clients have a clearer view of which critical areas to explore for deeper analysis.

Following the initial assessment, IBM continues to partner with each client to develop a tailored carbon management solution using Green Sigma. The phases below describe a high-level framework for a Green Sigma engagement.

Phase I: Define key performance indicators

A set of client carbon kpis is defined and tailored to the client's environment, industry and business. Activities include building a carbon key process indicator set including regulatory and stakeholder requirements.

Phase II: Establish metering

Identify and advise areas to deploy suitable metering, where applicable, in order to track and establish a set of carbon kpi baselines, which in turn are used to identify opportunities for improvement.

This phase can also include the development of a facilities management plan or sensor deployment strategy and also identify supporting technical infrastructure requirements.

Phase III: Deploy carbon dashboard

Deploy a portal-based Carbon Management Dashboard system to display kpis, metering data and other critical data outputs. This can link into the physical network infrastructure as well as initiate triggers for carbon trading.

Phase IV: Optimise processes

Use applied Green Sigma statistical tools and techniques to analyse, improve and optimise processes which impact areas of high energy use or high carbon output, where through the use of applied experimental design techniques, optimisation is achieved by identifying the critical input control factors.

Phase V: Control performance

Green Sigma consultants work with the client team to establish ongoing optimisation of core processes and kpis. Critical control factors, with control limits identified in the optimisation stage are deployed on the Carbon Dashboard for ongoing monitoring and control. Opportunities for replication and standardisation of opportunities and processes are applied across the enterprise to further leverage benefits of a Green Sigma investment.

The goal with the Green Sigma offering is to partner with clients to drive innovation, achieving economic benefits for the business and reducing the impact on the environment.

*IBM is committed to environmental leadership in all of its business activities. For further information see **ibm.com**/ibm/environment*



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