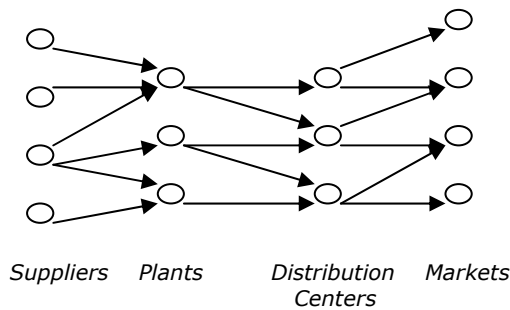


Supply Chain Environmental Analysis/Optimization Tool: **SEAT™**



Problem:

Supply chains are becoming increasingly vulnerable to energy prices and greenhouse gas emission constraints. Supply chains now span long distances and require significant use of fossil fuels and carbon-dioxide emissions to transport goods to consumers. At the same time, techniques such as lean manufacturing are keeping inventory levels low and require frequent replenishment throughout the supply chain – which can further add to the energy use and emissions, depending on the product. The total energy use and emissions in supply chains depend on transport modes, frequency of deliveries, and inventory levels. Significant opportunities exist for improving the energy/emissions profile of supply chains, while reducing overall cost in many cases.

A New Solution:

SEAT™ is an interactive software tool that can help improve the environmental performance of supply chains. **SEAT** allows users to *easily* model supply chain elements – such as transportation, storage, and production – from an energy and emissions perspective. Using advanced simulation and optimization algorithms, it provides powerful methods to analyze, report, and explore improvements to the environmental performance of supply chains.

Key Features:

SEAT offers a highly flexible way of modeling supply chain networks in terms of energy use, emissions and cost. Key modeling features include:

- Any number of user-defined transport modes, such as trucks, rail, ship or air, each consuming a particular fuel type and producing emissions based on various factors such as distance, cargo weight, and road type.
- Ability to define complex delivery schedules based on a calendar.
- Ability to define detailed delivery and pickup routes.
- User-defined storage locations, such as warehouses, and production plants with specific energy use and emission characteristics.
- Refrigeration requirements can be incorporated into both transportation and storage.
- Flexible definition of fuel and energy types for modeling different energy, emission and cost characteristics – accounting for when and where the fuel or energy is purchased and how it is produced.
- Other financial costs incurred due to inventory holding, warehousing, and transportation overheads can be easily included.

Once a supply chain network has been described using the modeling features, **SEAT** performs a comprehensive energy and emissions analysis of the network. Users can also take advantage of the incremental analysis capability, which allows a quick re-analysis after changes are made to transport modes or other details of the supply chain. **SEAT** can automatically evaluate the global environmental

impacts of local changes to the supply chain.

The analysis can be used in several ways:

- Evaluating the total energy used and carbon-dioxide emissions produced, including the exact locations and links in supply chains that contribute significantly to the environmental footprint.
- Determining how overall energy and inventory costs can be reduced while also reducing emissions.
- Comparing the environmental performance and cost for alternate supply chain configurations. Variables include: production batch sizes, transport modes, distances, various combinations of local and long-distance suppliers and markets, etc.

SEAT also includes integrated routing and mapping capabilities for road transport modes. This locational intelligence significantly enhances the analysis and reduces the burden on users.

Optional optimization modules are available for minimizing fuel consumption in supply and distribution networks, and for determining the best transport modes and shipping sizes throughout a supply chain. The optimizations are fully integrated with the analysis engine and can use the locational information.

Inputs and Outputs:

SEAT has the look and feel of a typical Windows application. Supply chain elements in **SEAT** can be described or modified, and connected to other elements, using a series of dialog boxes. Alternately, an entire supply chain network can be described using a simple and compact modeling language in a text file. Any changes made interactively can

be retained by saving the entire model of the network as a text file for future use.

If your supply chain data is available in other formats or databases, we offer services to convert the data into the **SEAT** format.

Results produced by **SEAT** are available in multiple formats:

- Results can be displayed on screen in a tabular format, and then optionally printed or saved as a PDF file.
- Results can be saved as an XML file, which can then be read directly into Excel for further use.
- Results can also be saved as a text file.

SEAT's outputs can be made compatible with the corporate reporting standard of the Greenhouse Gas Protocol as an option. We can work with you to attain compliance with other reporting standards.

Applications:

SEAT can be used within a wide range of applications, including:

- Achieving overall cost savings from reduced energy use in supply chains.
- Meeting greenhouse gas emission reduction targets.
- Emission calculations for use in offsetting carbon footprints.
- Carbon footprint analysis for eco-labeling of consumer products.
- Detailed corporate reporting of energy use and emissions.

Platform Support and Availability:

SEAT runs on Microsoft Windows platforms (Windows XP SP2, Windows Server 2003, Windows 2000 SP3), and is available as part of service agreements.

For more product information, please visit our environmental performance web site at www.suryatech.com/ep