



SAS® Energy and Emissions Management

Reduce time, risk and complexity in gauging your carbon footprint

What does SAS® Energy and Emissions Management do?

SAS® Energy and Emissions Management models business processes to determine emissions and energy consumption, their cost and what drives them. It helps an organization identify reduction strategies that make sense for the business while ensuring that resources required and impacts of change are understood. The solution offers integrated data management, business modeling, reporting and analysis.

Why is SAS® Energy and Emissions Management important?

This solution enables organizations to make informed decisions that streamline processes and reduce consumption of natural resources. SAS Energy and Emissions Management supports effective execution on holistic green strategies that help the environment and save money for reinvestment in other areas.

For whom is SAS® Energy and Emissions Management designed?

This solution is intended for organizations that need to: 1) understand the contributors to their carbon footprint and other environmental measures such as waste or water; and 2) determine the best path for improvement. The results of the analyses are surfaced to all members of the corporate social responsibility team and then to a broader audience of defined stakeholders.

Organizations today desire new insights that lead to innovations aligned with the dynamics of a carbon-conscious economy. Internally, organizations are increasing their efforts to improve efficiency measures to meet carbon-reduction goals. As many leaders face these new challenges and opportunities, they are often engaged in costly attempts to quantify their energy and emissions, and may set plans that lead down the wrong path without having the accurate and trustworthy information that proactive sustainability management requires.

Hurdles abound. Data from your sources of energy and emissions often resides in multiple operational systems or rudimentary accounting files. Most likely, you have limited resources and skill sets to assimilate the questionable data and manage the overall sustainability program. Lastly, the shifting global landscape of regulations and increasing commitments to customers and your value chain are a strain on time and resources.

To evaluate greenhouse gas (GhG) emissions accurately and constructively, you need access to a library of standardized rates and formulas that you can trust.

The complexities of associating resource consumption data with specific activities, product, business units or other analysis dimensions is another hurdle, that unless solved, leaves the organization without enough information to pinpoint opportunities for change and measure the relative improvements. You are not able to answer why emissions or energy consumption trends behave as they do, know your areas of risk or underperformance, or identify future consumption or problems in advance.

The ability to evaluate alternate scenarios to understand which projects have a measurable impact on energy or emissions reduction will enable you to pursue optimal results that are consistent with your sustainability goals. To truly report on your organization's environmental performance, you must first accurately attribute GhGs to activities, products and services to understand the main drivers.

Understanding your true carbon footprint or waste streams is only relevant if you can do something about it. With SAS Energy and Emissions Management, organizations can pinpoint the activities that drive increases or decreases in environmental performance, and then evaluate alternative scenarios to quantify strategies for improvement. Organizations choose SAS because of the insights derived from our unique modeling structure, our ability to connect to any data source, and our access to libraries of standard environmental measures – all which help the analyst go beyond purely measuring performance to taking actions that improve it.

Key benefits

Know your organization's carbon footprint.

SAS Energy and Emissions Management structures data at the most detailed level available (meter or asset) so that it can be rolled up into divisions, regions or operating units. This allows you to understand energy consumption and the carbon footprint of your organization, from top to bottom. SAS aggregates consumption variables and calculates associated emissions for you. With such comprehensive information available, you can present



transparent accounting for energy and emissions, providing an audit trail with the source of emissions factors used in the calculations.

Model alternative sustainability projects and quantify their effect on achieving corporate objectives.

Resource modeling is the new paradigm that reveals the kind of insight necessary for decision making – something spreadsheets and similar tools have a difficult time doing. SAS establishes a carbon model, not a calculation. The carbon model is multidimensional, made up of many attributes that act as analysis variables. In planning mode, the user can adjust analysis variables (square footage, headcount, fuel type), and then run the model engine to quantify the corresponding change in energy consumed or emissions generated. You can save scenarios for future reference. Users can model an unlimited number of scenarios to fully understand the opportunities and liabilities of proposed sustainability projects, both individually and as a collective. And it can be used to quantify the change in GhG emissions resulting from a proposed project.

Simplify data collection, improve data quality and provide an auditable record to support compliance needs.

SAS does much of the work for you. With SAS, you can automatically extract, transform and cleanse virtually any data, in any format, on any platform. Once set up, the solution provides a complete audit of how data is used. Schedule the collection of data to meet your needs – monthly, weekly or even daily. Our powerful analytics identify suspect data to address quality issues before you add the data to models or reports.

Predict resource and capacity needs.

As you explore alternative scenarios with SAS, you will need to adjust your resources to attain your goals. SAS consumption-driven modeling methods allow users to predict the resource implications of proposed changes, and integrated cost analytics give insight into the financial impact of initiatives. Additional forecasting options also allow the incorporation of what-if forecasting, where a forecast analysis can be augmented to incorporate changes in independent variables and then

reprocess the potential outcome (e.g., what if we decide to add lab space to a given region, or convert more workers to a flexible work arrangement?).¹

Access global standards, rates and consumption factors through our trusted partner, AMEE. (www.amee.com)

Partnering with AMEE as a neutral aggregator of emissions and energy information, SAS is able to provide a prebuilt data integration package that automatically maps emissions source information into the SAS Energy and Emissions Management solution. This virtually eliminates the maintenance of custom data integration projects associated with aggregating emissions information manually. The SAS solution includes a data extraction engine customized for AMEE's Web service (API). AMEE provides comprehensive coverage of the most important data, methodologies and standards spanning 150 countries and regions, for calculating GHG emissions across a spectrum of emission-causing scenarios.

Solution Overview

Data Integration

Data is the single biggest challenge facing organizations today. SAS software's unparalleled data integration lets you increase the speed and reliability of data gathering and scales to your organization's growing sustainability data requirements. It provides the ability to read from and write to nearly any data on any technology platform in batch and real time – or manually collect data – and leverage SAS software's embedded data quality processes.

Aggregate, measure and evaluate energy and emissions associated with Scope 1, 2 and 3 activities.

SAS provides activity-based capacity and resource planning models to help you collect energy and emissions data and evaluate alternatives, based on



Figure 1. Energy and emissions performance is made available through easy-to-use Web-based dashboards and animated reports.

¹ SAS® Forecast Server license required.

predicted resource requirements. The consumption-driven model is based upon activity-based management (ABM) principles. The SAS solution also offers a connection to a trusted global standards library from AMEE to save you time and improve confidence in your analyses.

SAS Energy and Emissions Management easily integrates with sustainability reporting, strategy management, and advanced analytics. Because these rely on the same platform, you can leverage the efforts already established for data collection for other purposes.

Perform intuitive, powerful modeling with SAS® software's multidimensional modeling for comprehensive analysis.

SAS Energy and Emissions Management's multidimensional carbon modeling employs the most flexible modeling paradigm in the industry, and as a result, you glean information on not only your organization's carbon footprint, but also how to improve it. The solution provides an approachable interface so that business users can easily adjust dimensions to add new analysis variables or modify organizational structure.

Collaborate with robust reporting and analysis across your enterprise.

To share sustainability results and predictions across your enterprise, SAS offers robust capabilities for standardizing and customizing Web reports for wide audiences. The ability to easily publish the results of analyses in such a streamlined fashion saves precious time and resources in communicating with stakeholders and regulators alike.

Technical Requirements

Client environment

- Windows XP Professional SP3 (32-bit)

Minimum processor speed

- 1GHz processor (2.5GHz recommended)

Key Features

Aggregate, measure and evaluate energy and emissions associated with Scope 1, 2 and 3 activities

- Consumption-driven model based on ABM principles.
- Application of standard emissions factors from trusted partner (AMEE).
- Incorporate weighting factors as necessary for management insight. For example, use energy intensity factors to allocate emissions to different types of square footage not specifically metered.
- Account for energy credits or other carbon offsets.
- Evaluate energy and/or CO2e side by side.
- Expand scopes of analysis to meet stakeholder demands for data.

Intuitive, powerful modeling environment

- Multidimensional modeling opens the door for comprehensive analysis:
 - Manage the key cost drivers of customer, product, service or business processes, so you can see what impact they have on the bottom line.
 - Conduct what-if analysis for resource planning and perform activity-based budgeting.
 - Calculate energy and emissions from business segments, such as products, customers and organizations.
- Point-and-click model navigation does not require programming expertise.
- Dimensions (analysis variables) are easily configured by business users.
- Model both physical activities (meters attached to a building), or nonphysical activities or entities (labs, data centers, business processes, finished products, etc.).

Data integration

- Ability to read from and write to nearly any data on any technology platform in batch and real time, including Excel, Oracle, DB2, SAP, Teradata, etc., as well as legacy systems.
- Manually collect data using Web data entry, if necessary.
- Use embedded data quality processes.
- Data warehousing or data mart capability.

Robust reporting and analysis

- Comprehensive ad hoc analysis and self-service OLAP reporting.
- Report data by different intensity factors, such as square feet, revenue, headcount, units shipped, etc.
- Save reports for deployment in Web portals to share insights across the entire organization.
- Integrate with [SAS Sustainability Reporting](#) for communication and management of sustainability performance and strategies.²

² Separate license required.

Memory requirements

- 2GB RAM (3GB recommended)

Disk space required

- 5GB available disk space with 1GB available on system drive

Server environment

The number and size of models (and their associated analysis cubes) affect all factors of hardware-related performance. The applicability of a specific server platform is primarily dependent on data volumes. Minimum hardware requirements are estimations

only. The minimum server configuration is required to operate the software.

Operating systems

- Windows 2003 Server SP2 (64-bit) or IBM AIX 6.1 (on Power PC) or Solaris on SPARC Version 10

Minimum processor speed

- Dual Processor 32-bit, 2GHz (Quad Processor 64-bit, 2.5GHz recommended)

Memory requirements

- 2GB, with swap file size equal to twice physical memory

