TRIRIGA Real Estate Environmental Sustainability (TREES)

Increase shareholder value and achieve environmental sustainability objectives by driving lower energy consumption and emissions and reducing the cost of managing workplace assets and operations.

Today's Challenges

TRIRIGA Real Estate Environmental Sustainability (TREES) increases shareholder value and achieves environmental sustainability objectives by driving lower energy consumption and emissions and reducing the cost of managing workplace assets and operations. Organizations that implement Integrated Workplace Management Systems (IWMS) such as TREES to achieve environmental sustainability create significant shareholder value with high returns on their workplace assets and operations. Organizations that invest in sustainable workplaces yield lifecycle savings of more than ten times the initial investment[1].

Buildings account for a staggering 48% of energy consumption and greenhouse gas emissions[2]. Achievement of environmental sustainability strategy creates tremendous shareholder value through improvements to workplace assets and operations. For example, the identification and implementation of the right building retrofits and maintenance projects create a proven positive impact on productivity and reduce an organization's dependencies on nonrenewable resources and escalating energy costs. As a result, an organization's profitability potential increases an average of $11/SQF due to improved operational efficiencies, worker productivity and asset performance.

The challenges to achieve an environmental sustainability strategy today include collecting energy consumption and emissions data of workplace assets and operations, then processing and analyzing the data to evaluate and identify the opportunities to make the best decisions to increase shareholder value. Complex and expensive, the current means and methods today fall well short of what is needed. Most organizations struggle because they lack enterprise-class systems to address these needs, and find it difficult if not impossible to achieve sustainability objectives established by boards and executive management. Until now, that is.

TREES: Reduce Environmental Costs and Improve Environmental Sustainability

TRIRIGA Real Estate Environmental Sustainability, or TREES, represents the industry's first integrated workplace management and measurement system specifically designed to collect energy consumption and emissions data for buildings. TREES provides a single, comprehensive repository of environmental data for workplace assets and operations. It enables workplace executives to increase profitability with measurement of current
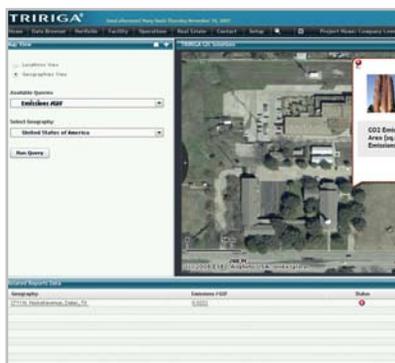
environmental performance, identification and evaluation of environmental opportunities with the greatest financial return and management of their implementation. Reduced consumption of electricity, oil, water and other resources enhances the organization's contribution to society. The combination of cost reductions and societal contributions, reduced energy consumption and greenhouse gas emissions, enabled by TREES significantly increases shareholder value.

The unique ability to measure, manage and reduce the environmental impacts and costs of workplace assets and operations enables these compelling benefits of TREES.

Measure: Embedded Assessment Tools Measure Environmental and Financial Performance

Implementation of an environmental sustainability strategy starts with collection and compilation of critical workplace asset information, including energy consumption and emissions data. TREES accurately gathers and processes this information into a single shared database repository. Embedded assessment tools use this data to accurately calculate and measure the environmental and financial impacts of the real estate portfolio with 24 metrics that measure consumption, emissions, workplace operations costs and environmental performance benchmarks. Such capabilities integrated into TREES include the following as an example of some of the capabilities included in the solution:

- TRIRIGA Carbon Value Analysis, the TREES carbon calculator, accurately calculates carbon footprint of workplace assets and operations. Carbon Value Analysis records energy consumption and workplace emissions to determine the overall impact of both emissions and credits on the environment. An integrated Geographic Information System (GIS) maps carbon footprint and other environmental performance metrics of the organization's locations. Color-coded regions and push-pin icons identify underperforming locations and areas for improvement.

- Integrated LEED (Leadership in Energy and Environmental Design) rating system automatically calculates and scores environmental sustainability of workplace operations and assets for each building. This includes new construction, existing buildings and commercial interior retrofits. In addition, LEED Project Summary produces a financial summary report for costs required for new construction and building retrofit projects.

- TRIRIGA Workplace Performance Management for Environmental Sustainability measures and assesses overall environmental and financial performance. This includes new metrics to measure consumption, production of greenhouse gas emissions and waste from workplace operations, as well as energy and resource costs. A Triple Bottom Line Accounting Report outlines the impact of environmental actions and results to measure and drive performance.

Manage: Integrated Analysis Tools Identify and Evaluate Opportunities to Improve Environmental Sustainability

The next step in the implementation of an environmental sustainability strategy requires a system to identify and evaluate environmental opportunities to improve energy efficiency and energy savings at the building level and overall real estate portfolio level. TREES provides integrated analysis tools to compile and compare environmental opportunities at the building and real estate portfolio level to optimize capital spend, financial return and societal value. Such analytics tools in TREES include the following as an example of some of the tools provided in the solution:

- TRIRIGA Facility Assessment collects and identifies environmental opportunities for existing buildings in the portfolio. Facility Assessment provides scenario analysis to evaluate funding requirements and financial return of building retrofits and preventive and corrective maintenance projects based on environmental sustainability objectives. Green Condition Index (Environmental Opportunities/Total Replacement Value) measures the funding required at the building level to meet environmental sustainability goals.

- Energy Value Calculator includes the United States Environmental Protection Agency's Energy Star rating calculations to estimate and identify energy opportunities across the portfolio that provide the highest energy savings points, impact on carbon footprint and overall savings. The Energy Value Calculator calculates financial savings on annual operating expenses, net operating income and enhanced asset value of workplace assets to determine and flag energy opportunities for capital spend that meet both environmental and financial objectives.

- TRIRIGA Energy Opportunity Summary prioritizes environmental opportunities across the real estate portfolio based on the Energy Value Calculator results. This analysis tool determines the best use of capital funds based on established corporate and environmental sustainability goals and submits selected projects for approval and funding. The Energy Opportunity Summary Report lists the projected costs, budget required and savings and carbon footprint reduction from the portfolio down to the individual building and location.

Reduce: Pre-Defined Workplace Processes and Practices Improve and Ensure Sustainability and Financial Performance

The final step towards implementation of an environmental sustainability strategy requires a system that provides workplace processes and practices to reduce overall energy consumption, greenhouse gas emissions and cost of operations. TREES provides the critical functionality required in an IWMS to manage the real estate lifecycle savings and environmental impact of workplace assets from acquisition and construction of buildings to the day-to-day management and maintenance of buildings. In addition, TREES also

provides the necessary audit trails, metrics and reports to ensure alignment and compliance with corporate environmental sustainability objectives. Such a system in TREES includes the following key capabilities:

- TRIRIGA Operations pre-defines processes to improve energy efficiency of workplace operations and manage building retrofits to reduce carbon footprint, energy consumption and costs. Commissioning manager functionality provides embedded procedures to ensure efficient use of material, energy and water from building retrofits to daily facility maintenance. Preventive maintenance functionality improves the overall operational efficiency of critical assets and equipment to further improve and reduce environmental impact of workplace operations. Energy and Water Consumption Reports combined with Emissions Report record impact of environmental actions.

- TRIRIGA Real Estate transaction pre-defined processes and practices ensure compliance with sustainability goals and metrics. The co-location functionality aggregates and consolidates underperforming buildings within the portfolio to further reduce energy consumption and greenhouse gas emissions. The Real Estate disposition functionality eliminates locations to reduce environmental footprint of underutilized workplace assets. The Environmental Expenditures and Investment Reports track and report on the cost of all environmental-related projects and actions associated with workplace assets and operations.

- TRIRIGA Facilities improves workplace utilization through pre-defined processes to reduce vacant space and decrease overall carbon footprint through improved space management. Shared office assignments and scheduling functionality provided by TRIRIGA Reserve reduce space demand and offset the overall supply required to support company growth. This key functionality minimizes the environmental footprint of facilities. Revenue per Emissions and Cost of Operations per Emissions provide two critical metrics to track and monitor facility spend and overall workplace operations to align with corporate environmental sustainability objectives.

Actively, Accurately Measure and Manage Environmental Performance

TRIRIGA® offers a complete, fully integrated system to achieve environmental sustainability. TREES extends the industry-leading capabilities of TRIRIGA's IWMS operational and performance management product suites to assess, evaluate and implement opportunities to specifically reduce carbon footprints. It uses the same common tools and database across both operational and performance management applications for real estate, facilities, projects and operations. This powerful combination enables accurate assessment of current conditions and management processes to reduce environmental impact.

TREES embeds analytical functions such as the carbon calculator and energy star rating calculator into TRIRIGA workplace operations management business processes to evaluate environmental opportunities and automatically measure and report current performance against objectives. Further, analytical information and geographical maps provide immediate access to operational data and transactions for management to take corrective action.

TREES provides a new category of 24 environmental sustainability metrics to measure and benchmark performance based upon the real-world experience of TRIRIGA's market-leading customers, standards organizations and more than 20 years of experience with measurement, management and reduction of environmental impacts. These pre-defined metrics deliver enormous value to organizations as they develop and implement sustainability strategies.

Quickly Accelerate Shareholder Value

TREES includes pre-defined logs, checklists, metrics, reports, analytical models, an analytics engine and IWMS operational processes derived from industry standards, best practices of market-leading customers and TRIRIGA's extensive industry experience. As a pre-defined and pre-packaged system, TREES will accelerate your time to value. Organizations can easily implement any required changes with TRIRIGA-supplied workflow tools instead of code changes required in a programming language. Taken together, these capabilities provide enormous value and enable organizations to quickly take advantage of the benefits of TREES.

TRIRIGA: Uniquely Positioned to Deliver Customer Success

TREES extends the unique capabilities of TRIRIGA IWMS. Recognized by leading industry analysts as the best-in-class solution, TRIRIGA IWMS provides the industry's most extensive functionality in a fully-integrated IWMS solution. With TRIRIGA IWMS, organizations can significantly improve financial performance and return on workplace assets. TRIRIGA's extensible technology provides customers with unmatched business agility to align and rapidly re-align objectives and the organization's processes to improve environmental and financial performance. TRIRIGA's highly experienced Professional Services organization provides implementation services and expertise based on completing hundreds of IWMS systems for operational efficiency and performance management. With an outstanding network of consultants, partners, industry experts and market-leading customers, TRIRIGA delivers exceptional service and proven best practices.

To find out more about how TREES improves the bottom line, contact an expert at 702-932-4444.

Sources:
1 Cost & Financial Benefit of Green Buildings, a report to California's Sustainable Building Task Force by Greg Katz, Capital E, May 19, 2004

2 Per US Energy Information Administration

Product Features

- Pre-defined, Role-based Portal for Environmental Director/Planner
- Environmental Metrics added to 11 current Role-based Portals
- Checklist Manager with 4 Embedded USGBC LEED Checklists
- GIS Map View for Performance Metrics and Queries
- Carbon Footprint Calculator and Carbon Log
- Utility, Waste, Travel and Emissions Logs
- Carbon Credit Log
- Carbon Footprint Analysis Tool
- Environmental Opportunity Forms with Environmental Analysis
- Planned Work Request Analysis and Approvals
- 24 pre-built Environmental Performance Metrics
- 17 Metric Dimensions
- Personalized Filters and Drill-paths for Analysis
- Financial Staging Tables for Financial Cost Data
- Financial Data Off-line Form
- Performance Metric Targets
- Performance Thresholds for Industry Benchmarking
- Time Trend Analysis
- IWMS Star Schema Analytics Data Model
- Utility Bill Invoice Form and Processing
- Facility Assessment Analysis Form
- Environmental Survey Request Form and Environmental Survey Metric
- Asset and Location Disposition Forms and Processing

Metrics

TREES includes 24 performance metrics to evaluate and analyze environmental performance:

- Energy Use
- Energy Cost
- Energy Use Intensity (GSF)
- Energy Use Intensity (GSF/Degree-day)
- Energy Use Intensity (Occupant)
- Emissions (Carbon)
- Emissions (Carbon) Intensity (GSF)
- Emissions (Carbon) Intensity (Occupant)
- Water Use
- Water Use Intensity (GSF)
- Water Use Intensity (Occupant)
- Solid Waste
- Solid Waste Recovery (%)
- Environmental Evaluation Survey
- Green Condition Index
- Emissions To Air
- Emission Intensity (GSF)
- Revenue/Carbon Emissions (CO2)
- Total Operating Cost / Carbon Emissions (CO2)
- Checklist Rating
- Environmental Efficiency Ratio
- Environmental Opportunity Analysis
- Energy Cost Ratio
- Renewable Energy Ratio

Metrics Dimensions

TREES includes 17 metric dimensions:

- Geography
- Location
- Energy Type
- Capture Period
- Building Class
- Tenure (Lease/Owned)
- Solid Waste Type

- Requesting Organization
- Question Category
- Building System
- Cost Code
- Organization
- Service Code
- Project Group
- Project
- Checklist Type
- Checklist Category

Additional Filters

TREES includes four additional filters for US Government Environmental Metrics:

- Real Property Type
- Real Property Use
- Mission Dependency
- Legal Interest

Reports

TREES includes 8 pre-built reports:

- Environmental Impact
- Energy Opportunity Summary
- Environmental Expenditures and Investments
- Energy and Water Usage
- Waste Disposal and Recycling Report
- Emissions Report
- LEED Project Summary
- LEED Checklist

IWMS Products optionally included in TREES Solution:

- TRIRIGA Facility Assessment
- TRIRIGA Operations
- TRIRIGA Reserve
- TRIRIGA Real Estate
- TRIRIGA Facilities