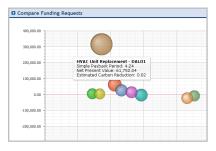# TREES® for Federal Government

Reduce energy consumption and greenhouse gas emissions from real property assets in compliance with Executive Orders and Federal legislation

Pre-built metrics evaluate energy and environmental performance to identify resource-intensive facilities

Environmental Opportunity Analysis generates higher savings from sustainability projects

Opportunities and Challenges

TRIRIGA Real Estate Environmental Sustainability delivers award winning capabilities to reduce energy use and improve environmental performance across Federal real property assets. Powerful, flexible and easy-to-use features pinpoint energy intensive assets and analyze environmental sustainability investments that meet Federal energy and environmental standards.

With the signing of EO 13514, the Federal Government has committed to reduce GHG emissions by 28 percent by 2020. Given that facilities account for more than 70% of electricity consumption and 40% of greenhouse gas emissions[1] in the United States, the Federal Government has implemented aggressive energy and environmental standards for new construction, major renovations, existing building operations and leased facilities. Many agencies struggle to adhere to energy and environmental standards using a combination of spreadsheets and other disparate systems that lack necessary analysis, planning and implementation capabilities.

EO 13514 "requires agencies to measure, manage, and reduce greenhouse gas emissions toward agency-defined targets." [2]

Agencies must first collect energy consumption and emissions data from a wide variety of locations and systems. In order to accurately track and report on energy use and environmental performance, agencies require a system that centralizes and aggregates environmental and facility data.

In addition, agencies require an enterprise-class system to reliably identify energy intensive facilities and building retrofit and maintenance projects that meet or exceed Federal energy and environmental standards.

Equally as important, agencies require tools to effectively manage implementation of energy and environmental projects and properly maintain improvements on an on-going basis.

TREES: Reduces Energy Use and Environmental Impact to Achieve Federal Goals

Recognized by leading research firm AMR as a leader in sustainability technology, TRIRIGA delivers an environmental sustainability management solution specifically designed to measure, manage and reduce the environmental impact of real property assets. TREES provides a single pre-defined data repository, analytics engine and workflow automation engine to measure environmental performance, evaluate projects and streamline implementation.

Measure: Baseline and Benchmark Energy, Carbon and Environmental Impact

Compliance with Federal standards begins with the collection, compilation and comparison of critical energy and environmental data. TREES delivers advanced capabilities to automate the capture of baseline environmental data, simplify energy benchmarking and streamline environmental reporting.

- TREES provides multiple methods to capture energy use, waste disposal and water consumption data within a single shared database repository. In support of legislation such as EPACT 2005, TRIRIGA provides the capability to directly integrate with meters and energy management systems, as well as utility bill payment providers.

- The TREES carbon calculator follows the Greenhouse Gas Protocol to create metrics and reports that meet Federal GHG reporting requirements such as EO 13514.

- To easily analyze energy and environmental performance across geographic areas, TREES provides ESRI integration to map the carbon footprint and other environmental performance metrics of facilities.

- To simplify agency-wide energy and environmental benchmarking, TREES provides pre-defined performance metrics and direct integration to the ENERGY STAR® Portfolio Manager. This integration provides capabilities to benchmark facility energy use to meet the energy benchmarking requirement of EISA 2007.

Manage: Evaluate and Plan Opportunities to Improve Environmental Performance

The next step towards compliance with Federal standards requires a system to evaluate opportunities to reduce energy use and carbon emissions. EO 13514 requires that each agency "develop, implement, and annually update an integrated Strategic Sustainability Performance Plan that will prioritize agency actions based on lifecycle return on investment". TREES provides integrated analysis tools to model and compare energy efficiency measures to optimize the financial and environmental return on capital invested.

- TRIRIGA provides the capability to collect and identify environmental opportunities, analyze planning scenarios and evaluate funding requirements. TRIRIGA offers an optional TRIRIGA Connector for RSMeans to build quick initial cost estimates.

- TRIRIGA's opportunity analysis calculates the financial and environmental return from energy and environmental opportunities identified across a single facility or an entire portfolio. The system provides a side-by-side comparison of these opportunities and automates the creation of funding requests.

- To streamline the management of LEED (Leadership in Energy and Environmental Design) initiatives, TREES provides integrated checklists to evaluate associated projects and tasks. In addition, the TREES checklist functionality provides the capability to manage compliance with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings.

- The Energy Opportunity Summary Report lists the projected costs and savings in energy and carbon from the portfolio down to the individual facility. This information combined with the TREES performance metrics is critical to track compliance with Federal objectives such as EO 13423 which requires a 3% annual reduction in energy use, or EO 13514 which requires a 2% annual reduction in water use.

> "Each agency shall develop, implement, and annually update an integrated Strategic Sustainability Performance Plan that will prioritize agency actions based on lifecycle return on investment"
>
> – EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance

Reduce: Implement and Maintain Improvements to Environmental Performance

Finally, in order to achieve Federal energy and environmental goals, agencies must successfully implement programs and projects that provide solid environmental returns in a cost effective manner. EO 13514 states that agencies should pursue a sustainable operations and maintenance program to "reduce the consumption of energy, water, and materials". Once projects are implemented, agencies must maintain improvements to prevent loss of performance gains.

- TRIRIGA Projects provides capabilities to implement energy and environmental improvement projects within scope, schedule and budget. The system allows projects to be combined into a program to streamline management and reporting. TRIRIGA Projects provides the ability to track multiple funding sources within a single project or program. The system provides robust project management capability for complete change control and risk management.

- TRIRIGA Operations provides pre-defined processes to improve energy efficiency and environmental performance of workplace operations. Preventive maintenance functionality improves the overall operational efficiency of critical assets and equipment to reduce energy use and environmental impact of workplace operations. TRIRIGA Operations also provides scheduling and workflow capabilities to streamline compliance with the energy management and commissioning requirements of EISA 2007.

- According to EO 13514, agencies should pursue opportunities to "consolidate and dispose" of real property assets. TRIRIGA Facilities and TRIRIGA Strategic Facility Planning provide pre-defined processes to consolidate underperforming buildings within the portfolio, improve space utilization and decrease carbon emissions. 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.

- TRIRIGA Real Estate provides pre-defined processes to streamline the disposition of underutilized workplace assets. Under EO 13514, agencies must take into account sustainable site selection criteria such as proximity to mass transit when planning new facilities. TRIRIGA Real Estate provides the capability to incorporate these elements into site selection decisions. TRIRIGA Real Estate lease administration provides tools to adhere to Federal mandates regarding the energy and environmental performance of leased facilities.

TRIRIGA: Uniquely Positioned to Deliver Agency Success

Named by foremost analyst firm AMR Research as the leader in sustainability software and top industry analysts as a leader in Integrated Workplace Management Systems, TRIRIGA provides enterprise sustainability, real estate and facilities management solutions. TRIRIGA delivers the industry's most advanced capabilities such as configurable workflow and performance analytics engines to reduce operating costs, increase return on assets and achieve sustainability goals for mid- and large-sized commercial and public enterprises.

To find out more about how TREES helps achieve compliance with Executive Orders and Federal legislation, contact an expert at 702-932-4444.

[1] Per US Energy Information Administration

[2] White House Press Release, October 5, 2009

Product Features

Security and Portals/Dashboards
- Pre-defined, role-based portal for Energy/Sustainability Manager

Metrics and Reports
- 36 pre-built Environmental Performance Metrics
- 17 Metric Dimensions
- Performance Metric Targets
- Performance Thresholds for Industry Benchmarking
- Time Trend Analysis
- Personalized Filters and Drill-paths for Analysis
- 8 pre-defined energy and environmental reports
- ESRI Map View for Performance Metrics and Queries

Energy and Environmental Management
- Checklist Manager with embedded USGBC LEED Checklists
  - LEED-NC
  - LEED-EB O&M
  - LEED-CI
- Carbon Footprint Calculator based on GHG Protocol
- Direct integration to ENERGY STAR Portfolio Manager
- Energy, Water, Waste, Travel and Emissions logs
- Carbon and Carbon Credit logs
- Carbon Footprint Analysis tool
- Environmental Opportunity form and analysis
- Utility Bill Invoice Form and Processing
- Facility Assessment Analysis Form
- Environmental Survey Request Form and Environmental Survey Metric

Technology
- IWMS Star Schema Analytics Data Model
- Completely web-based platform

Metrics

TREES includes 36 performance metrics to evaluate and analyze environmental performance:
- Energy
  - Total Energy Use by type
  - Cost
  - Energy Use Intensity
    - by GSF
    - by Degree -day
    - by Occupant
- Carbon Emissions
  - Total Emissions
  - Carbon Emission Intensity
    - by GSF
    - by Occupant
    - by Revenue
    - by Operating cost
- Water
  - Total Water Use
  - Water Use Intensity
    - By GSF
    - by Occupant
- Potential Savings from Energy Use Reduction
- Energy Rating Improvement
- Ranking by Energy Rating Quartile
- Solid Waste

- Solid Waste Recovery (%)
- Environmental Evaluation Survey
- Green Condition Index
- 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 additional filters for US Government Environmental Metrics:
- Real Property Type
- Real Property Use
- Mission Dependency
- Legal Interest
- Location Type

Reports

TREES includes 8 pre-built reports:
- Environmental Impact
- Energy Opportunity Summary
- Environmental Expenditures and Investments
- Environmental Summary
- Energy and Water Usage
- Waste Disposal and Recycling
- Emissions
- LEED Project Summary
- Waste Disposal

IWMS Products optionally included in TREES Solution:
- TRIRIGA Real Estate
- TRIRIGA Projects
- TRIRIGA Facilities
- TRIRIGA Strategic Facility Planning
- TRIRIGA Operations
- TRIRIGA Facility Assessment
- TRIRIGA Reserve

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