Green Globes is an important tool for federal agencies to comply with EO 13423

1. Energy Efficiency

Federal Environmental Executive, E.O. 13423 requirement: Reduce energy intensity 30 percent by 2015, compared to an FY 2003 baseline.

Green Globes: Green Globes-CIEB focuses on improving building energy performance based on both the physical aspects of the building (envelope, building mechanical and electrical systems and equipment) and energy management (energy policy, audits, targets, metering, operating manual, schedules, and preventative maintenance).

Baseline: CIEB provides an accurate, verified procedure, which establishes an energy baseline within a holistic framework that addresses environmental, physical, and human elements of a facility.

Benchmarking: The CIEB program benchmarks the facilities and identifies opportunities that allow the asset and building managers to create a roadmap/implementation plan. They can select individual low cost/ no cost or capital improvement measures or bundles of facility specific interventions that will result in an incremental way in improved energy efficiency through cost-effective methods.

The Green Globes-CIEB portfolio performance comparison: The portfolio performance reporting allows asset managers to compare the performance, target the most environmentally and cost effective measures on entire portfolio of buildings and monitor implementation progress.

Measurement of actual reduction: Green Globes-CIEB is complementary to the EPA's Energy Star program and awards points for the use of Energy Star rated systems and appliances. Green Globes-CIEB also uses the EPA Portfolio Manager to help determine an energy consumption target in k/Btus for each building type. To receive points under *Building Energy Performance* in Green Globes-CIEB, buildings must achieve levels of performance better than that of a building that meets the 75% target as defined by EPA's Target Finder, where appropriate. Projects realizing these energy savings will also achieve additional savings through reduced operations and maintenance requirements. Specific objectives of Green Globes' energy program include:

Energy consumption for building operations by achieving a target that surpasses EPA Target Finder, taking into consideration intended use, occupancy, plug loads, and other energy demands.

Reduce plug and occupants loads by engaging building tenants and building management through a communication dialogue.

Reduce loads by taking advantage of site and microclimate opportunities to reduce heat loss or gain through the envelope and use natural ventilation strategies.

Reduce loads on energy-using systems by minimizing the energy that is gained or lost through the envelope.

Reduce loads on energy-using systems and encourage continuous energy efficiency and performance through monitoring energy consumption.

Reduce energy needed by using "right-sized" energy-efficient equipment.

2. Greenhouse Gases

Federal Environmental Executive, E.O. 13423 requirement: Reduce greenhouse gas emissions through reduction of energy intensity 30 percent by 2015, compared to an FY 2003 baseline.

Green Globes: Reduction in air emissions is strongly promoted through:

- The use of low-NOx/low-CO boilers and furnaces whose NOx emissions do not exceed 30 ppm corrected to 3% O2, and whose CO emissions do not exceed 400 ppm corrected to 3% O2.
- Avoiding ozone depletion and global warming by refrigerants or having low ozone-depleting potential for HFS (hydrofluorocarbon) or HCFC (hydrochlorofluorocarbon) refrigerants if they are specified.
- An examination of Global Warming Potential of refrigerants and monitoring cooling equipment leaks.

3. Renewable Power

Federal Environmental Executive, E.O. 13423 requirement: At least 50 percent of current renewable energy purchases must come from new renewable sources (in service after January 1, 1999).

Green Globes: Green Globes seeks to reduce the consumption of non-renewable energy resources and the associated green house gas emissions. Points are awarded where renewable energy supplies 1- 50% or more of the total load. Possible designs include solar preheat systems for hot water, wind turbines, Photovoltaic solar panels, and electricity purchase from a green provider.

4. Building Performance

Federal Environmental Executive, E.O. 13423 requirement: Construct or renovate buildings in accordance with sustainability strategies, including resource conservation, reduction, and use; siting; and indoor environmental quality.

Green Globes: Green Globes-CIEB promotes indoor air quality by allocating points in three primary areas: Effective Ventilation Systems, Source Control of Indoor Pollutants and IAQ Management. By providing a "before" report that includes recommendations for improvement in all of these areas, and an "after" report showing achievements, this makes it possible to quantify the improvements. For information on resource use, conservation, and reduction see sections 1-3, 5, and 9-10.

5. Water Conservation

Federal Environmental Executive, E.O. 13423 requirement: Reduce water consumption intensity 16 percent by 2015, compared to an FY 2007 baseline.

Green Globes: Green Globes facilitates the reduction of water consumption by awarding points for a variety of water conservation measures.

- Increased water efficiency is encouraged by reducing off-site treatment of water, in order to reduce the burden on municipal water supply and wastewater systems.
- Points are awarded for 1-30% or more water savings for the design case compared to the "base case". A "base case" is one in which all fixtures are standard fixtures that comply with the Energy Policy Act of 1992. The Green Globes system will calculate this based on the percentage water savings over and above EPACT case.
- Additionally, points are awarded for on-going water consumption monitoring.
- Other measures include minimal use of water for cooling towers. Where cooling towers are used certain features are encouraged to minimize the consumption of 'make up' water.
- Water conservation is facilitated by reductions in irrigation water, eliminating or reducing the use of potable water required for landscape irrigation.

6. Vehicles
Federal Environmental Executive, E.O. 13423 requirement: Increase purchase of alternative fuel, hybrid, and plug-in hybrid vehicles when commercially available.

7. Petroleum Conservation
Federal Environmental Executive, E.O. 13423 requirement: Reduce petroleum consumption in fleet vehicles by 2 percent annually through 2015, compared to an FY 2005 baseline.

8. Alternative Fuel
Federal Environmental Executive, E.O. 13423 requirement: Increase use of alternative fuel consumption by at least 10 percent annually, compared to an FY 2005 baseline.
Green Globes: Green Globes does not currently address this requirement.

9. Pollution Prevention
Federal Environmental Executive, E.O. 13423 requirement: Reduce use of chemicals and toxic materials and purchase lower risk chemicals and toxic materials.
Green Globes: Green Globes seeks to reduce land and water pollution and minimize risk to the health of occupants and the local environment. This is achieved through the following measures.

- Points are awarded for certain features of storage tanks, which reduce the harmful effects of chemical and toxic materials.
- If PCBs or asbestos are present in the building, they must meet applicable regulatory requirements.
- Measures are awarded that prevent the accumulation of harmful chemicals and gases such as radon and methane in spaces below the substructure and their penetration into the building.
- Integrated pest management techniques are used in order to reduce pest infestation and reduce pesticide applications.
- Hazardous materials are managed through storage suggestions, which minimize risk associated with chemical and toxic materials.
- Water contamination is avoided through preventing contaminants to enter the sewer system and waterways by awarding points for drain, filter, and trap designs.

10. Procurement
Federal Environmental Executive, E.O. 13423 requirement: Expand purchases of environmentally sound goods and services, including biobased products.
Green Globes: Green Globes seeks to create demand for environmentally preferable products and equipment that have a less adverse environmental impact in terms of resource use, production of waste, energy use and water use.

- Points are awarded for third party certified environmentally preferable products through EPA's Environmentally Preferable Purchasing (EPP) Program.
- Points are awarded where 1-10 % or more of materials used are “re-used” and where 1-20% or more of materials contain recycled content. Additionally, the use of biobased products, including green insulation, natural fibers, and natural structural materials, is also encouraged.
- Responsible procurement of solid lumber and timber panel products is encouraged through the use of third-party certifiers, including Sustainable Forestry Initiative (SFI), CSA Sustainable Forest Management (SFM), Forestry Stewardship Council (FSC), or American Tree Farm System (AFS).
- Reuse of the existing features is awarded when 1-100% of existing facades are integrated in the project.

11. Electronics Management

Federal Environmental Executive, E.O. 13423 requirement: Annually, 95 percent of electronic products purchased must meet Electronic Product Environmental Assessment Tool standards where applicable; enable Energy Star® features on 100 percent of computers and monitors; and reuse, donate, sell, or recycle 100 percent of electronic products using environmentally sound management practices.

Green Globes: Green Globes-CIEB is complementary to the EPA's Energy Star program and awards points for the use of Energy Star rated systems and appliances. Points are awarded where 1-10 % or more of materials used are "re-used" and where 1-20% or more of materials contain recycled content.