Overseas Buildings Operations (OBO)

Federal Real Property Association

1. **Setting Green Goals**
2. **Measuring Green**
3. **Getting to Green**
   a. New Construction
   b. Existing Facilities
4. **Green-Diplomacy**

Donna McIntire
Sustainability Program Manager

July 22, 2008

Federal Mandates:

- **EPAct 2005, Section 103 - building metering;**
- **EO 13423 - New & Renovation comply w/ MOU;**
- **EO 13423 - 15% incorporate MOU by 2015;**
- **EO 13423 - 16% water use reduction by 2015;**
- **EO 13423 & EISAct 2007 - 30% energy use reduction in existing facilities by 2015;**
- **EISAct 2007 - 55% energy use reduction in new construction by 2010 & 100% by 2030;**
- **EISAct 2007 - Manage stormwater to pre-developed conditions.**

Energy Independence and Security Act:

signed by President Bush *on* Dec. 19, 2007:

- **Strengthens national security, by lessening our dependence on foreign oil**
- **Reduces global warming**
- **Lowers energy costs for consumers**
- **Creates hundreds of thousands of new jobs and strengthens our economy**

For OBO:

By 2011 - 4 yrs evaluate **193** Posts *(75% of OBO's energy consumption 257 Posts)*

By 2009 - 2 yrs implement life-cycle cost effective measures for evaluated posts

Within 180 days (June 19, 2008**)** evaluate energy & water of 48 Posts *(25% of 75%)*

2007 Sustainability Survey – 90 reported on energy & water

Setting Green Goals
Facility Audits & Tracking

Goals:

- **Audit 75% of facilities = ~193 Posts for water and energy consumption;**
- **Web-based Tracking;**

4-year Audit Cycle for 193 Posts

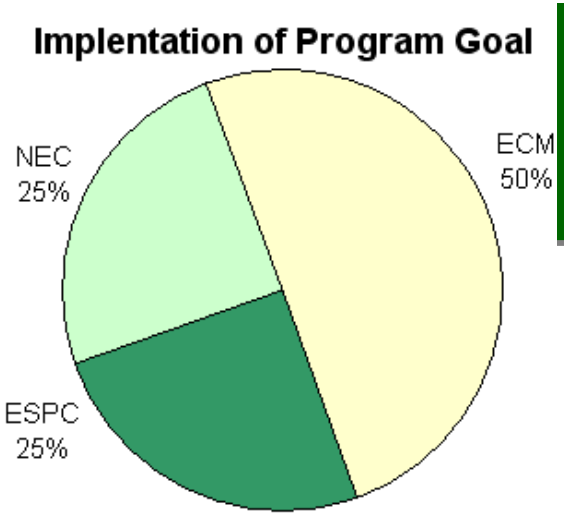
Post Audits	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Target	48	48	48	49	48	48	48	49
Complete	Cycle I	96	144	**193**	Cycle II	96	144	**193**

Total Posts =	**257**
Posts to audit in 4 year cycles (75% of 257) =	**193**
Posts to audit every year (1/4 of 193) =	**48**
Private Sector Activity	**100%**

Web-Based Tracking of Utilities and Guiding Principals

Post Reporting	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Complete	90	167	257	257	257	257	257	257

Total Posts =	**257**
OBO Program Activity	**100%**



Setting Green Goals
Project Implementation

Goals:

- **3rd Party Building Certification; and**
- **15% of facilities meet Guiding Principles = 39 NECs.**

Project Implementation

Total Projects 257

ECM (50%)	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Target	2	7	20	20	20	20	20	20
Complete		9	29	49	69	89	109	**129**
							% of Program Goal - Energy Conservation Measures	**50%**

NEC (25%)	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Target	10	10	8	7	7	7	7	7
Complete		20	28	35	42	49	56	**63**
							% of Program Goal - OBO Capital Funding Projects	**25%**

Total to replace	**180**
Completed to date	**-56**
Under Construction	**-34**
Total left to replace	**90**

ESPC (25%)	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Target	2	3	10	10	10	10	10	10
Complete		5	15	25	35	45	55	**65**
							% of Program Goal - Private Sector Projects	**25%**

Measuring Green Sustainability Database

Sensitive But Unclassified

Sustainability Data

Collection, Storage, & Reporting

FINAL SUMMARY REPORT

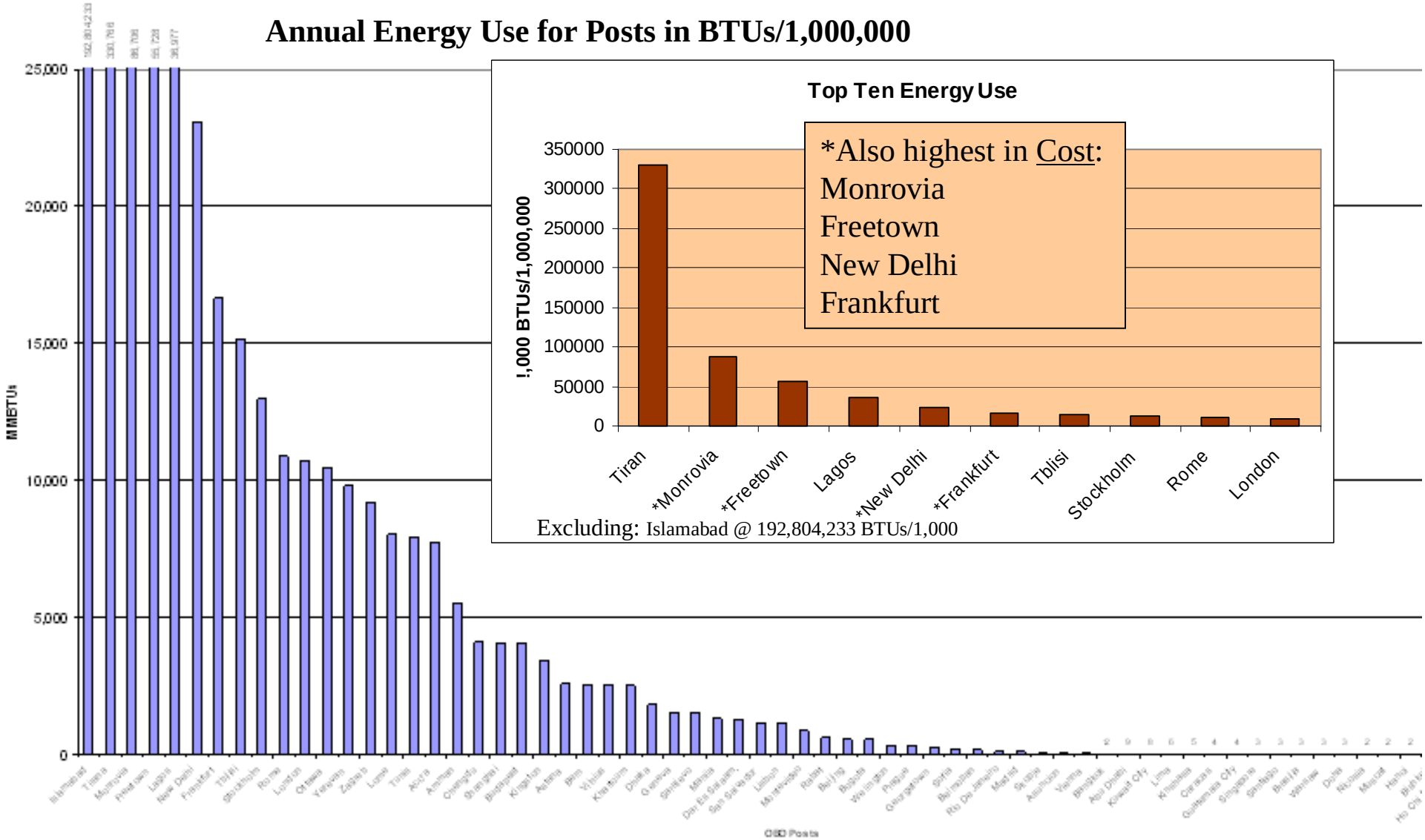
JANUARY 10, 2008

JACOBS

U.S. DEPARTMENT OF STATE
Bureau of Overseas Buildings Operations

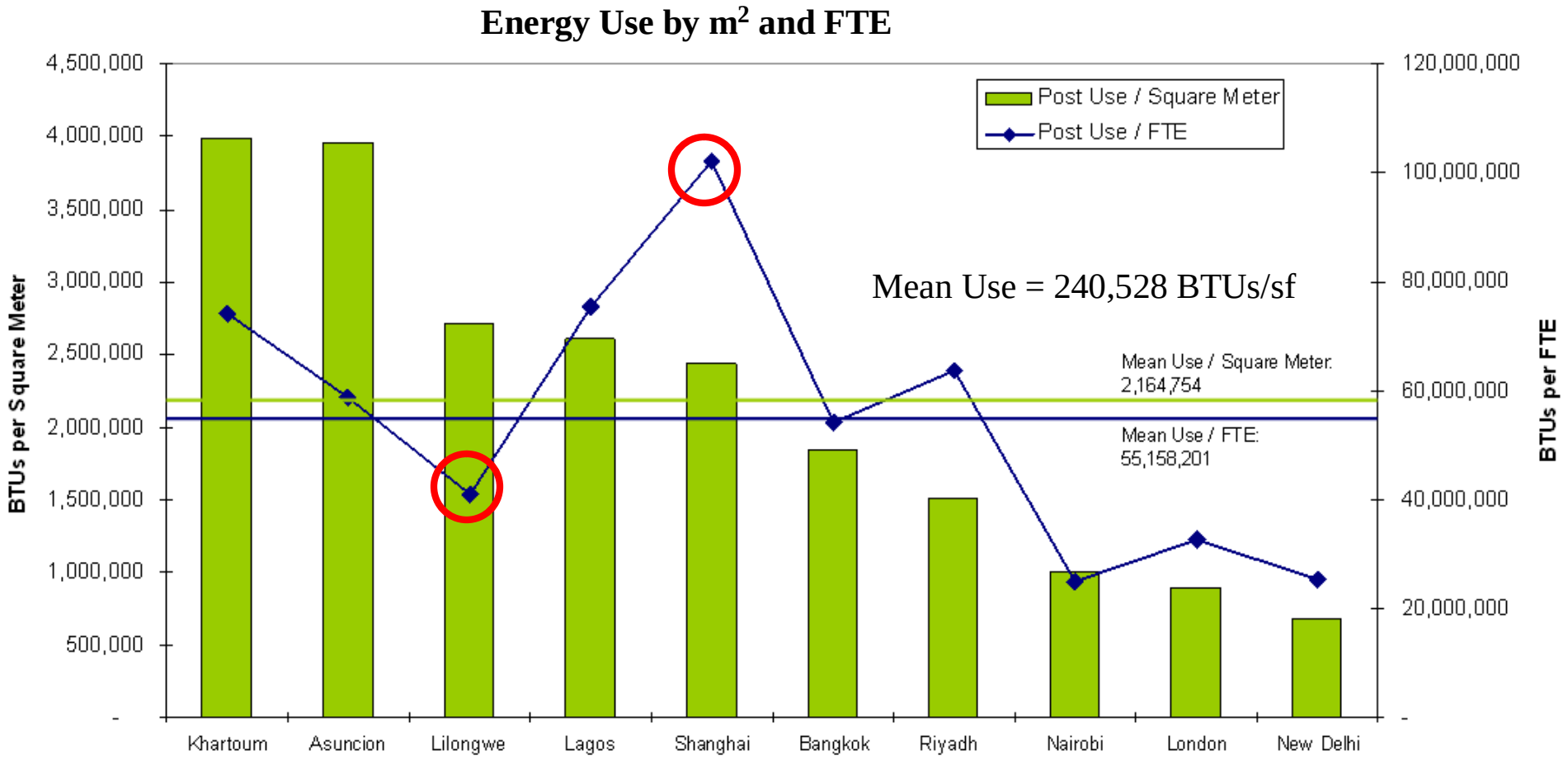
Measuring Green Energy Use by Post for 2007

Annual Energy Use for Posts in BTUs/1,000,000



Excluding: Islamabad @ 192,804,233 BTUs/1,000

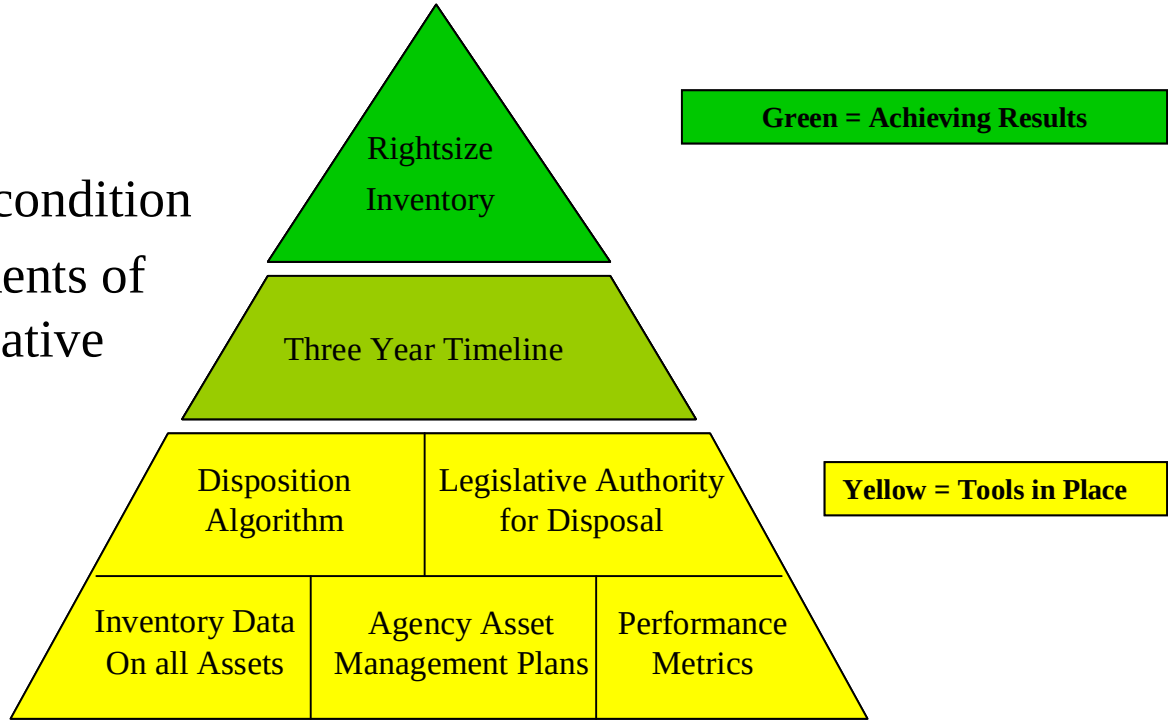
Measuring Green
Energy Use by m^2 & FTE



Measuring Green
PMA Federal Real Property Initiative

Focuses on achievements in four key areas:

- Eliminating surplus assets
- Operating at the right cost
- Ensuring critical assets in condition
- Compliance with requirements of Federal Real Property Initiative



Inventory Data and Performance Measures are tracked through OBO's Real Property Inventory Database and then reported to the Federal Real Property Profile (FRPP), maintained by GSA

Measuring Green
PMA Federal Real Property Initiative

	Data Element		Data Element		Data Element
1	Real Property Type	9	Utilization	17	State
2	Real Property Use	10	Value	18	Country
3	Legal Interest	11	Condition Index:	19	County
4	Status	12	Mission Dependency	20	Congressional District
5	Historical Status	13	Annual Operating Costs	21	Zip Code
6	Reporting Organization	14	Main Location	22	Installation/Sub-Installation ID
7	Using Organization	15	Real Property Unique ID	23	Restrictions
8	Size	16	City	24	Disposition
25	**Applicability of Executive Order to Asset**				
26	**Meets Sustainability Goals of the Executive Order**				

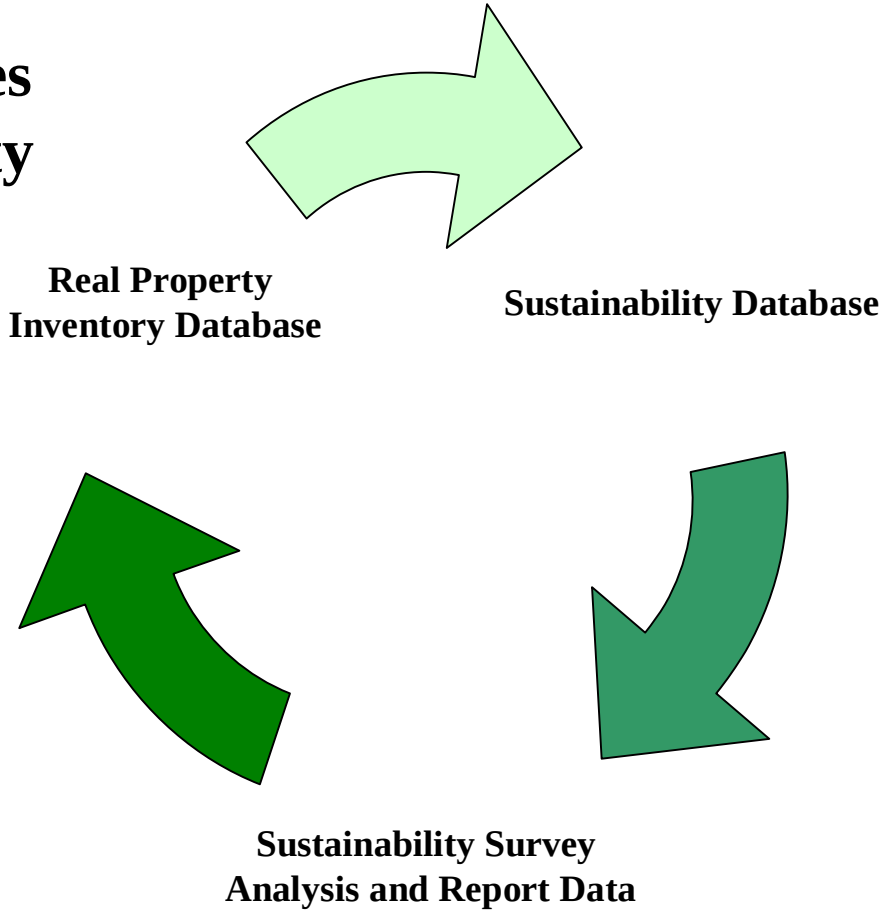
Currently 24 data elements in FRPP. 2 new elements to be added per EO 13423.

FRPP will track success in meeting the 15% goal by 2015 through these elements.

Measuring Green
PMA Federal Real Property Initiative

OBO's Sustainability Database uses Property IDs from Real Property Inventory Database

- Post data tracked in database by Property ID
- Sustainability data will be sent back to the Real Property Inventory Database to track progress for the Federal Real Property Initiative.



The data from the sustainability reports will be reported in two elements in the Real Property Inventory Database

OBO GreenGuide for Posts

GreenGuide for Embassy & Consulate Operations

First Edition

GreenGuide

for

Embassy & Consulate Operations

"I encourage our missions to use this timely and valuable guide to address energy and sustainability challenges at our facilities overseas, in response to federal mandates and in support of greater environmental stewardship. Regular adherence to the guidance provided here will allow Overseas Buildings Operations to participate in and forward the Department of State's platform of eco-diplomacy."

Patrick F Kennedy
Under Secretary of Management
Department of State

SITE

Natural wetland systems have often been described as the "earth's kidneys because they filter pollutants from water that flows through on its way to receiving lakes, streams and oceans. Because these systems can improve water quality, engineers and scientists construct systems that replicate the functions of natural wetlands.

WATER

The Saguaro is the ultimate water harvester-sucking up as much water as possible when it rains. The trunk and arms are pleated like an accordion and can expand or contract with the amount of water taken in. Saguaro roots extend to a diameter of 100 feet (for a 50-foot-high Saguaro) at a depth of only inches. Tiny hairs absorb even concentrated drizzle or mist.

ENERGY

The potential of solar power in the Southwest United States is comparable in scale to the hydropower resource of the Northwest. A desert area 10 miles by 15 miles could provide 20,000 megawatts of power, while the electricity needs of the entire United States could theoretically be met by a photovoltaic array within an area 100 miles on a side.

MATERIAL

The gecko can support his entire body with one toe. Biomimicry scientists are studying the microscopic hairs (setae) gecko's toes as a model for developing the first dry, self-cleaning adhesive

INDOOR ENVIRONMENT

Termites have designed their structures to perfectly balance the raging heat of the day and the bitter cold of the night naturally ventilating their environment to an even 79 °F.

TRANSPORTATION

Ruby-Throated Hummingbirds fly ~ 27 miles per hour on their 18.5 hour migration flight across the Gulf of Mexico without refueling.

That is fuel efficiency worth mimicking.

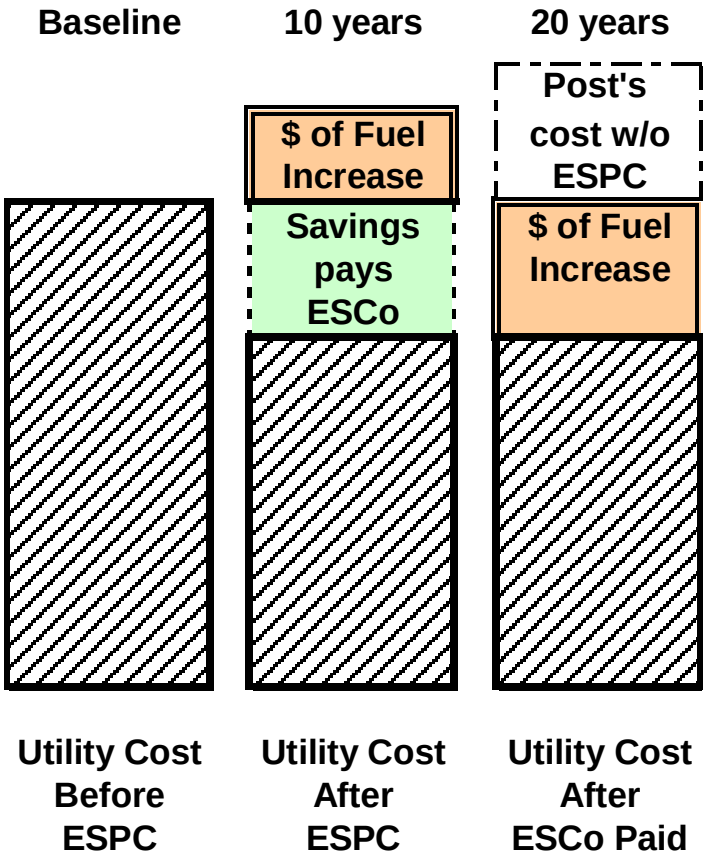
Getting to Green
Sustainability Studies & Reports

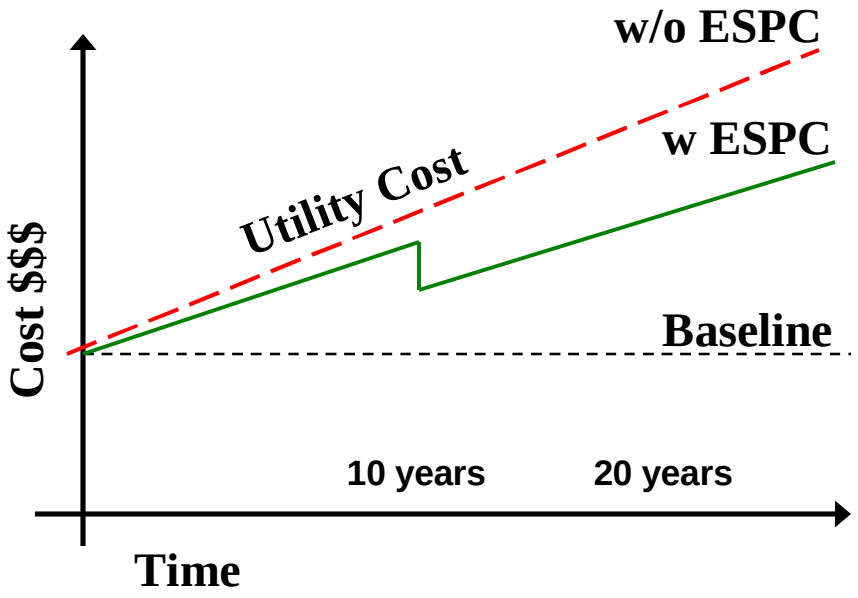
Studies and reports support both new and existing facilities:

- Wind
- Vegetative Roofs
- Sustainable Lighting
- Water Resources
- Photovoltaics
- ***Coming soon:***
  - Metering
  - LED

Getting to Green
Energy Savings Performance Contracting (ESPC)

ESPC - private funding paid by project energy savings over time.





DOS – DOE MOU:

OBO & DOE/FEMP signing Memorandum of Understanding to procured ESPCs for the Department

United States Department of State

JUL - 7 2008 *Washington, D.C. 20520*

ACTION MEMO FOR DIRECTOR, AD INTERIM SHINNICK

FROM: OBO/PE – Joseph Toussaint

SUBJECT: Memorandum of Understanding (MOU) with Department of Energy's Federal Energy Management Program (DOE/FEMP) to support Energy Savings Performance Contracting (ESPC)

Recommendation

That you approve the attached MOU to support work with DOE/FEMP to broadly implement ESPC projects for OBO facilities.

Approve _____ Disapprove _____

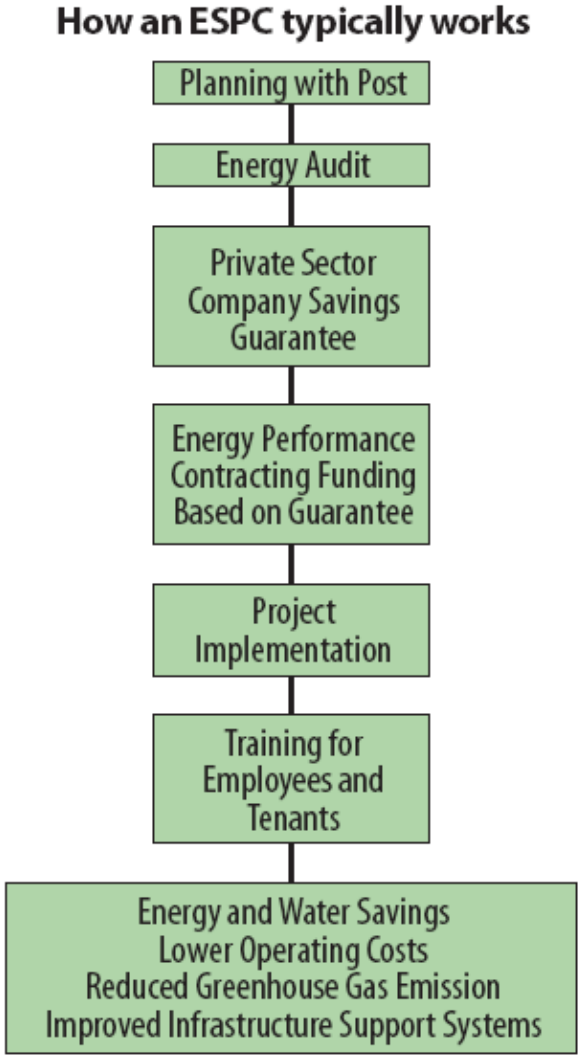
Background

The President's recent focus on energy- and water-related conservation compels the Department to comply with increasingly more stringent requirements in the operation and maintenance of its facilities. The Energy Independence and Security Act (EISA) signed by President Bush on December 19, 2007 recommended use of ESPCs to achieve the targets without the use of appropriated funds. OBO intends to ramp-up the use of ESPCs in an effort to meet the requirements of EISA, Executive Order 13423 - Strengthening Federal Environmental, Energy, and Transportation Management signed in January 2007, and other federal mandates. DOE/FEMP has developed a very useful program to assist agencies implement ESPCs. OBO has already used this alternative funding method on five projects.

Getting to Green – Existing Facilities
Energy Savings Performance Contracting (ESPC)

ESPC - private funding paid by project energy savings over time.

- **Recommended** by *Energy Independence and Security Act*
- **Assistance** by DOE/FEMP pre-competed Energy Savings Contractors (ESCo)
- **Contract support** by OBO/OP/AM at 1% of project cost funded by project
- **Bundle** strategies to achieve reasonable payback period
- **Post Management of Contractor Payment -** lower O&M and utility costs pay the ESCo over time



Getting to Green – Existing Facilities
Energy Savings Performance Contracting (ESPC)

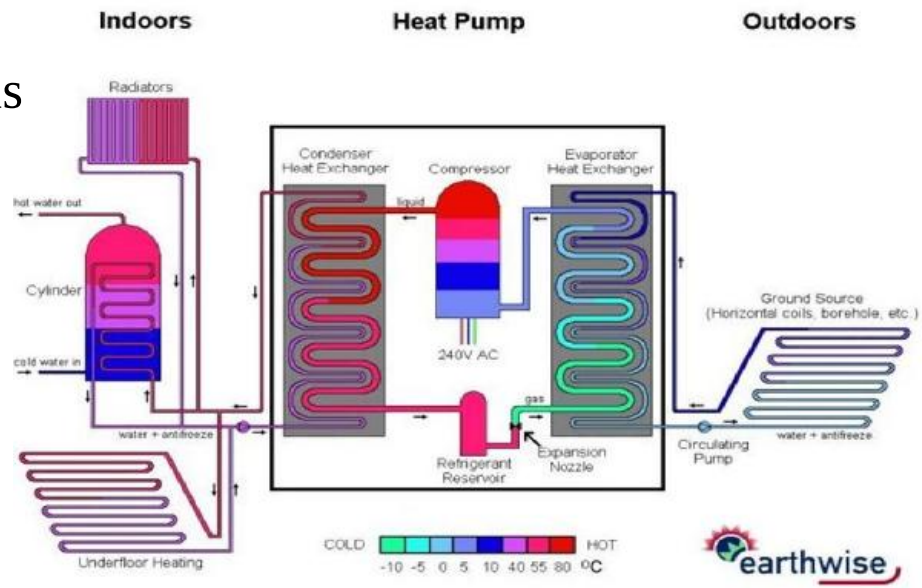
Examples of OBO ESPCs

- Mexico City: Lighting, motors, & controls
  1999- $0.58M 9-yr contract;

- Seoul: Geothermal heat pumps
  2001- $12.5M 19-yr contract;

- Santo Domingo: Lighting and controls
  2005- $0.72M 10-yr contract;

- Dhaka: Gas turbine generators
  2007- $0.72M 11-yr contract;



Geothermal Heat Pump System

Getting to Green – Existing Facilities
ESPC Photovoltaic Projects

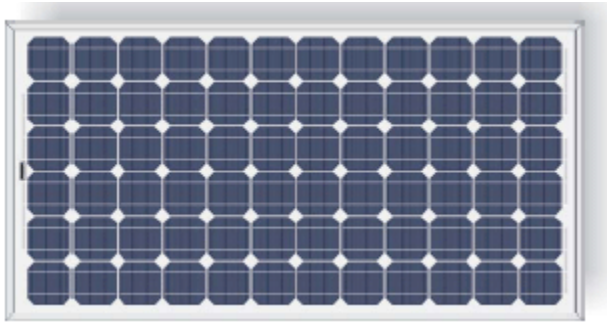
Photovoltaics: OBO Prioritization Listing **by Payback**:

Rank	FY NEC	Post	Country	kW PV	Project Cost (Total)	Annual Savings	Simple Payback (Years)	Utility Rate $/kWh
1	10	N'Djamena	Chad	300	$3,085,000	$1,955,088	2	$1.21
2		Abuja - NOX	Nigeria	125	$1,085,000	$671,104	2	-
3		Rangoon	Burma	250	$2,585,000	$671,882	4	-
4	09	Monrovia	Liberia	500	$4,085,000	$1,106,718	4	-
5	10	Santo Domingo	Dominican Rep	500	$4,085,000	$1,043,485	4	$0.40
6	05	Kigali	Rwanda	419	$4,275,000	$973,385	5	$0.45
7	05	Port-Au-Prince	Haiti	339	$4,390,000	$889,466	5	-
8	06	Harare	Zimbabwe	569	$4,637,000	$863,245	6	$0.15
8		Windhoek	Namibia	750	$6,085,000	$1,083,239	6	$0.40
9	06	Djibouti	Djibouti	569	$4,637,000	$821,817	6	$0.40
10	07	Ouagadougou	Burkina Faso	569	$4,637,000	$770,991	6	$0.40
11	07	Johannesburg	South Africa	569	$4,637,000	$767,662	6	$0.30
12		Kabul	Afghanastan	250	$2,085,000	$344,801	6	-
13		Athens	Greece	404	$2,711,000	$557,506	6	$0.12
14	09	Valletta	Malta	105	$925,000	$142,267	7	$0.30
15	06	Beirut	Lebanon	569	$4,637,000	$706,291	7	$0.30
16		Freetown	Siera Leon	500	$5,085,000	$747,574	7	-
17		Frankfurt	Germany	33	$299,500	$49,648	7	$0.14
18	06	Khartoum	Sudan	347	$2,861,000	$402,951	7	$0.40
19	08	Juba	Sudan	1000	$11,085,000	$1,569,768	7	-
20		Dushanbe	Tajikistan	300	$3,085,000	$402,110	8	$0.25
21	09	Malabo		200	$1,685,000	$220,673	8	-
22		Managua	Niceragua	569	$5,775,000	$705,489	8	$0.20
22	06	Brazzaville	Congo	569	$4,637,000	$549,338	9	$0.15
23		Phnom Penh	Cambodia	198	$2,065,000	$240,313	9	-
24		Conakry	Guinea	300	$2,485,000	$289,633	9	-

Getting to Green – Existing Facilities
ESPC Photovoltaic Projects

Photovoltaics: = ~$4.2M First Cost w/ $168M Savings

- **Economic benefits:** Passive power production with no fuel cost
  - 4–year payback for new construction depending on utility/fuel costs
  - Supplement prime power source – reducing generators in prime plant
  - Reduces electrical source use during peak load
  - LOW Maintenance – Passive system only requires periodic cleaning
  - Modular and able to be phased
- **System:** PV Panels, Inverters, & Mounting
  - Installation on large open roof areas
- **Other benefits:**
  - Increased security through independence/control of power source



Typical PV Panel

OBO's Photovoltaic Installation Geneva, Switzerland

Getting to Green – Existing Facilities
ESPC - MagLev Chiller Projects

MagLev Chillers = $.5M First Cost w/ $19M Savings (7-yr payback)

- **Economic benefits**: Variable speed high efficiency modular cooling capacity with lower utility/fuel cost.
  - Reduces Power Usage – 1 k - 0.5 kW/ton of cooling
  - 6-7-yr payback – depending on utility/fuel costs
  - Lower Maintenance – oil free magnetic bearings reduce wear and maintenance
  - Modularity - additional capacity at minimum cost
  - No Cooling Tower – reduces water usage and minimizes chemical usage
- **System**: Compressors, condensers and controls
  - Low noise, frictionless bearings, variable frequency drive, permanent magnet rotors, compact.
  - Projects currently initiated Tokyo and Geneva
- **Savings**:
  - Reduction of generator size and fuel consumed in prime power plants.
  - Adjustable capacity Minimum production during low demand and subsequently low energy usage.
  - Modules can be added to match increasing loads.

High Efficiency Compressor

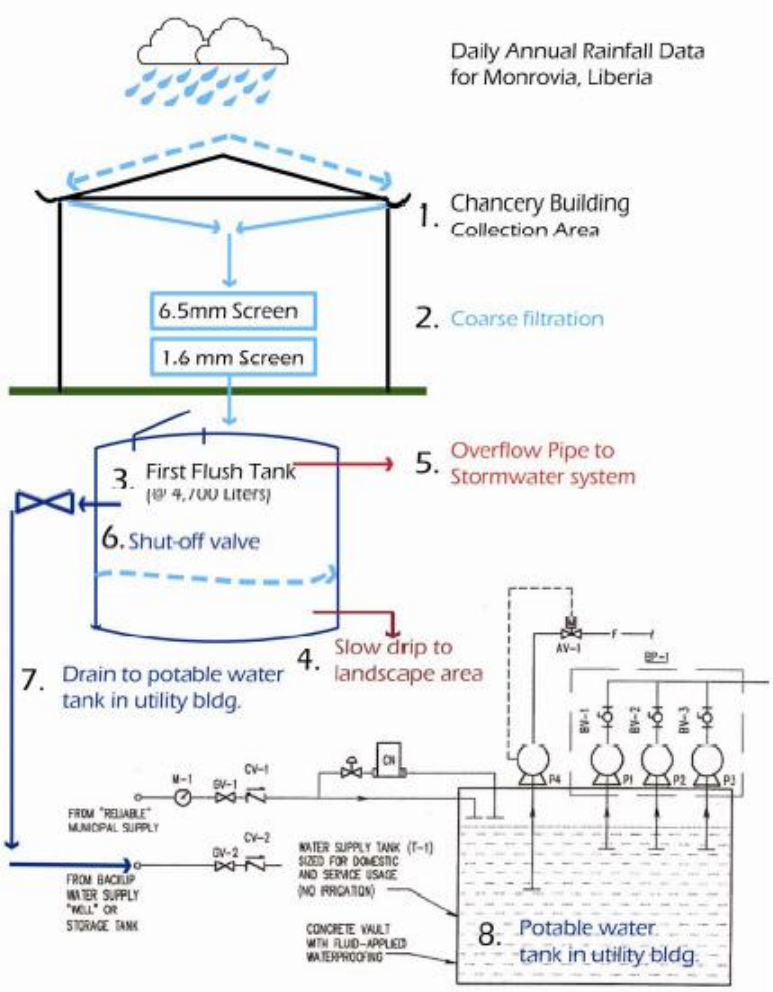
OBO's MagLev Chillers
Tokyo, Hong Kong

Getting to Green – New Construction
Budget Recommendations

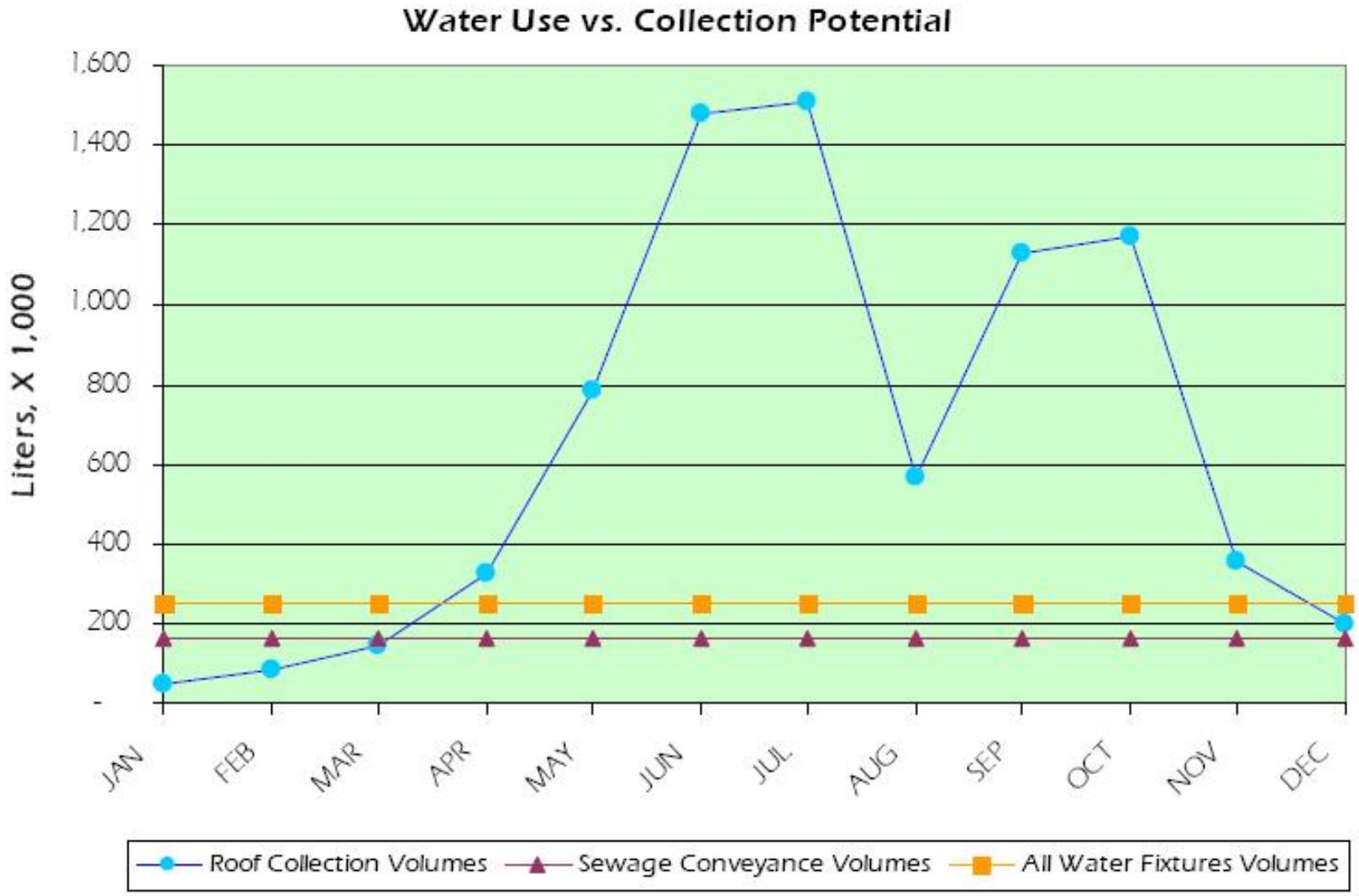
Energy & Sustainable Design Program (ESDP)				Primary recommendations for project cost			
		Item A	Item B	Item C	Item D	Item E	
Project	Budget	LEED Certification	Photovoltaics	Wind Power	LED Site Lighting	Sustain. Lighting	
FY10 TOTAL 1st Cost	$14,423,626	$27,134	$5,770,000	$0	$1,240,000	$4,411,291	
FY10 TOTAL Savings	$65,657,037	$52,990	$11,377,078	$0	$27,586,180	$14,703,844	
Asuncion	$1,677,284	$3,484			$210,000	$590,300	
Paraguay	$0						
50-Year Savings	$4,759,914	$13,210			$1,322,961	$1,967,604	
NEC LRBP Budget	$132,100,000	9,248gsm or 99,5456gsf = ($2,489 + $995)	128 - year payback		12.67 - year payback		
Bujumbura	$2,558,506	$2,526	$1,685,000		$210,000	$427,980	
Burundi	$0						
50-Year Savings	$7,466,430	$10,510	$2,351,000		$1,322,961	$1,426,556	
NEC LRBP Budget	$105,100,000	6,705gsm or 72,172gsf = ($1,804 + $722)	12 - year payback		12.67 - year payback		
The Hague	$894,668	$2,645			$210,000	$448,023	
Netherlands	$0						
50-Year Savings	$4,017,882	$13,640			$1,322,961	$1,493,362	
NEC LRBP Budget	$136,400,000	7,019gsm or 75,552gsf = ($1,889 + $756)	53 - year payback		12.67 - year payback		
Jakarta	$2,190,443	$8,396			$170,000	$1,436,047	
Indonesia	$500,000						

Getting to Green – New Construction
Initial Planning Survey (IPS)

Monrovia, Liberia NEC	First Cost	Payback	NPV	Include?
1. Rainwater Collection				
Sewage Conveyance Only	$ (438,000)	4.42	$ 1,547,735	
100% Potable Water	$ (40,000)	-0.75	$ 3,385,479	Y
2. Potable Water Options				
Option 1	$ (6,979)	-0.77	$ 879,217	
Option 2	$ (19,219)	-0.73	$ 1,950,614	
Option 3	$ (19,669)	-0.75	$ 2,370,549	
Option 4	$ (19,984)			Y
3. Envelope				
Window Shading	$ (223,244)	11.89	$ 212,930	Y
Eliminate Wall Insulation	$ 17,646	-1.94	$ 480,535	Y
Window Film	$ (19,460)	15.23	$ 11,084	Y
Temperature Set Points	$ -	-0.98	$ 1,250,329	Y
Demand Control Ventilation	$ (20,000)	-0.63	$ 1,441,483	Y
4. PV Energy				
Scenario A: Site Arrays	$ (3,000,000)	13.72	$ 2,138,603	
Scenario B: Point-Of-Use Arrays	$ (1,350,000)	12.80	$ 1,116,529	
5. Wind Energy Options				
Scenario A: 30 kW	$ (120,040)	15.44	$ 39,572	
Scenario B: 45 kW	$ (296,300)	15.22	$ 102,778	
Secenario C: 330 kW	$ (734,000)	12.13	$ 479,971	
6. Waste Heat				
Adsorption Chiller	$ (120,250)	1.02	$ 1,253,243	Y
Enthalpy Wheel	$ (36,184)	0.18	$ 791,503	Y
7. Lighting				
New Luminaires	$ (14,615)	-0.82	$ 2,282,533	Y
Occupancy Sensors	$ (31,707)	0.81	$ 370,934	Y
Daylight Sensors	$ (72,724)	1.19	$ 607,910	Y
TOTAL ALL YES MEASURES	$ (580,522)	2.10	$ 12,087,963	



Getting to Green – New Construction
Initial Planning Survey (IPS)



Getting to Green – New Construction
FY08 Projects LEED Certified

				Sustainable Sites	Possible Points 14	
Y				Prereq 1	Construction Activity Pollution Prevention	
		1		Credit 1	Site Selection	1
			1	Credit 2	Developmental Density & Community Connectivity	1
			1	Credit 3	Brownfield Redevelopment	1
		1		Credit 4.1	Alternative Transportation: Public Transportation Access	1
1				Credit 4.2	Alternative Transportation: Bicycle Storage & Changing Rooms	1
			1	Credit 4.3	Alternative Transportation: Low Emitting & Fuel Efficient Vehicles	1
1				Credit 4.4	Alternative Transportation: Parking Capacity	1
			1	Credit 5.1	Site Development: Protect or Restore Habitat	1
1				Credit 5.2	Site Development: Maximize Open Space	1
	1			Credit 6.1	Stormwater Design: Quantity Control	1
		1		Credit 6.2	Stormwater Design: Quality Control	1
1				Credit 7.1	Heat Island Effect: Non-Roof	1
1				Credit 7.2	Heat Island Effect: Roof	1
1				Credit 8	Light Pollution Reduction	1

				Water Efficiency	Possible Points 4	
1				Credit 1.1	Water Efficient Landscaping: Reduce by 50%	1
		1		Credit 1.2	Water Efficient Landscaping: No Potable Water Use or No Irrigation	1
		1		Credit 2	Innovative Wastewater Technologies	1
1				Credit 3.1	Water Use Reduction: 20% Reduction	1
1				Credit 3.2	Water Use Reduction: 30% Reduction	1

				Energy & Atmosphere	Possible Points 17	
Y				Prereq 1	Fundamental Commissioning of the Building Energy Systems	
Y				Prereq 2	Minimum Energy Performance - CFR434/ASHRAE 90.1-1999	
Y				Prereq 3	Fundamental Refrigerant Management	
2				Credit 1.1	Optimize Energy Performance: 20% New / 10% Existing	2
		2		Credit 1.2	Optimize Energy Performance: 30% New / 20% Existing	2
		2		Credit 1.3	Optimize Energy Performance: 40% New / 30% Existing	2
			2	Credit 1.4	Optimize Energy Performance: 50% New / 40% Existing	2
			2	Credit 1.5	Optimize Energy Performance: 60% New / 50% Existing	2
		1		Credit 2.1	On-Site Renewable Energy: 5%	1
			1	Credit 2.2	On-Site Renewable Energy: 10%	1
			1	Credit 2.3	On-Site Renewable Energy: 20%	1
1				Credit 3	Enhanced Commissioning	1
1				Credit 4	Enhanced Refrigerant Management	1
	1			Credit 5	Measurement & Verification	1
			1	Credit 6	Green Power	1

				Materials & Resources	Possible Points 13	
Y				Prereq 1	Storage & Collection of Recyclables	
			1	Credit 1.1	Building Reuse: Maintain 75% of Existing Walls, Floors, & Roof	1
			1	Credit 1.2	Building Reuse: Maintain 95% of Existing Walls, Floors, & Roof	1
			1	Credit 1.3	Building Reuse: Maintain 50% Shell & 50% Interior Non-Structural Element	1
1				Credit 2.1	Construction Waste Management: Divert 50% From Disposal	1
		1		Credit 2.2	Construction Waste Management: Divert 75% From Disposal	1
			1	Credit 3.1	Materials Reuse: 5%	1
			1	Credit 3.2	Materials Reuse: 10%	1
1				Credit 4.1	Recycled Content: 10% (post-consumer + 1/2 pre-consumer)	1
		1		Credit 4.2	Recycled Content: 20% (post-consumer + 1/2 pre-consumer)	1
1				Credit 5.1	Regional Materials: 10% Extracted, Processed, & Manufactured Regionally	1
		1		Credit 5.2	Regional Materials: 20% Extracted, Processed, & Manufactured Regionally	1
		1		Credit 6	Rapidly Renewable Materials	1
		1		Credit 7	Certified Wood	1

				Indoor Environmental Quality	Possible Points 15	
Y				Prereq 1	Minimum IAQ Performance	
Y				Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1				Credit 1	Outdoor Air Delivery Monitoring	1
1				Credit 2	Increased Ventilation	1
	1			Credit 3.1	Construction IAQ Management Plan: During Construction	1
		1		Credit 3.2	Construction IAQ Management Plan: Before Occupancy	1
		1		Credit 4.1	Low-Emitting Materials: Adhesives & Sealants	1
1				Credit 4.2	Low-Emitting Materials: Paints & Coatings	1
1				Credit 4.3	Low-Emitting Materials: Carpet Systems	1
		1		Credit 4.4	Low-Emitting Materials: Composite Wood & Agrifiber Products	1
	1			Credit 5	Indoor Chemical & Pollutant Source Control	1
			1	Credit 6.1	Controllability of Systems: Lighting	1
		1		Credit 6.2	Controllability of Systems: Thermal Comfort	1
1				Credit 7.1	Thermal Comfort: Design	1
1				Credit 7.2	Thermal Comfort: Verification	1
		1		Credit 8.1	Daylight & Views: Daylight 75% of Spaces	1
		1		Credit 8.2	Daylight & Views: Views for 90% of Spaces	1

				Innovation & Design Process	Possible Points 5	
1				Credit 1.1	Innovation in Design: Increased Life Safety – Security	1
1				Credit 1.2	Innovation in Design: Acoustics	1
1				Credit 1.3	Innovation in Design: Enhanced IAQ	1
	1			Credit 1.4	Innovation in Design: Project Specific	1
1				Credit 2	LEED™ Accredited Professional	1

				Total Project Score	Total Points 69
26	5	21	17		

Getting to Green – New Construction
OBO's 1st LEED Certification

NEC for Sofia, Bulgaria earned 7 Prerequisites and 26 Points:

- 37% Better than ASHRAE
- Brownfield Redevelopment
- Ozone Protection
- No Chemical Water Treatment
- Enhanced Indoor Air Quality
- Tree Preservation
- Building as Educational Tool

Getting to Green – New Construction
OBO's 2nd LEED Certification

NEC for Panama City earned <u>7 Prerequisites & 26 Points</u>:

- 35% Better than ASHRAE
- Ozone Protection
- Water Efficient Landscaping
- Regional Materials
- Low Emitting Materials
- Enhanced Indoor Air Quality
- Building as Educational Tool

League of Green U.S. Embassies:

20 embassies joined to date:

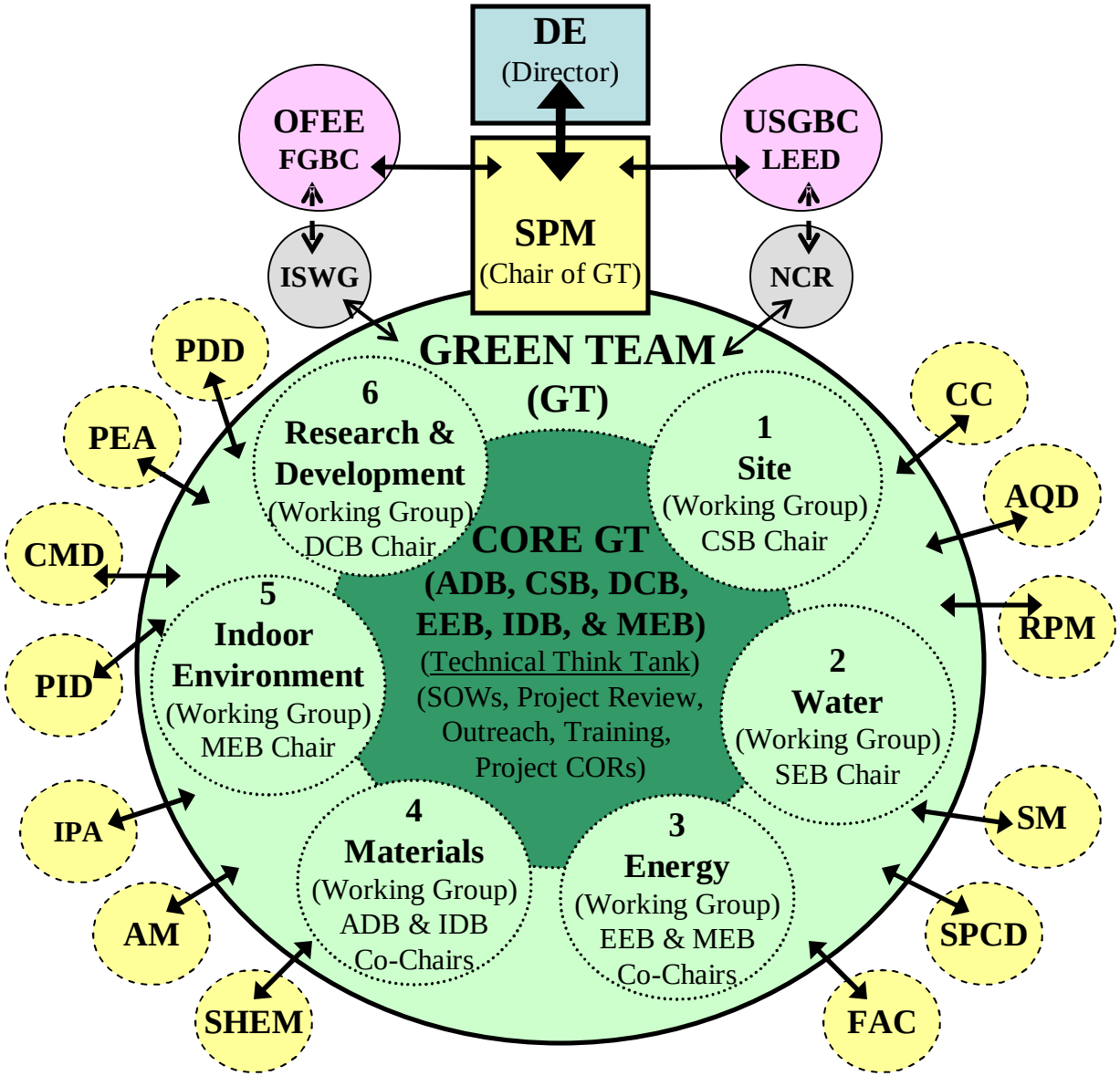
USEU	France	Ireland	Slovakia
UN-Geneva	Georgia	Luxembourg	Spain
Bulgaria	Greece	Malta	Sweden
Denmark	Hungary	Norway	UK
		Portugal	

- ü **Share best practices on greening our missions**
- ü **Act collectively to obtain funding**
- ü **Use public affairs to highlight our green practices**

- **US collaboration** with local government and private sector greening initiatives
- **Web-portal** for sharing of best practices, case studies, and energy saving tools and strategies
- **OBO support** via development of Green Guide for sustainable operation & maintenance of embassy properties

Energy & Sustainable Design Program

(Organizational Chart)



DE – Design & Engineering Division

SPM – Sustainability Program Manager

OFEE – Office of the Federal Environmental Executive
FGBC – Federal Green Building Council

USGBC – U.S. Green Building Council
LEED – Leadership in Energy & Environmental Design, Green Building Rating System

GT CORE & WORKING GROUP CHAIRS

ADB – DE's Architectural Design Branch
CSB – DE's Civil Structural Branch
DCB – DE's Design Coordination Branch
EEB – DE's Electrical Engineering Branch
IDB – DE's Interiors Design Branch
MEB – DE's Mechanical Engineering Branch
SEB – DE's Security Engineering Branch

AT-LARGE GREEN TEAM CHAMPIONS

PDD – Project Development Division
PEA – Planning Evaluation & Analysis
CMD – Cost Management Division
PID – Planning Integration Division
IPA – Interiors Planning & Analysis
AM – Area Management Division
SHEM – Safety, Health, & Environmental Management Division
FAC – Facility Management Division
SPCD – Special Projects Coordination Division
SM – Security Management Division
RPM – Real Property Management Division
AQD – Acquisitions & Disposals Division
CC – Construction & Commissioning Division