Energy Conservation & Energy Efficiency Projects

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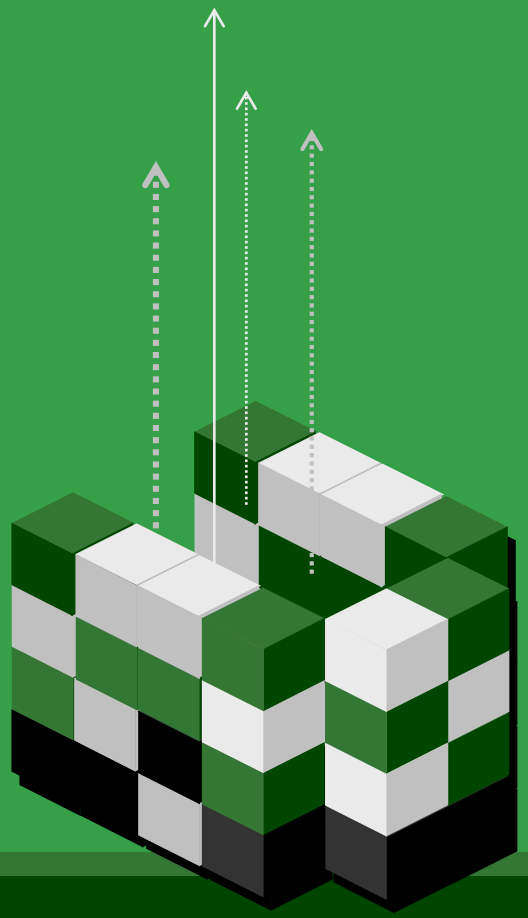
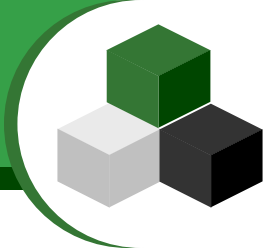


Presentation Overview



1. Introduction
2. Energy Conservation
3. Energy Efficiency
4. Conclusion

Energy Conservation & Efficiency

ENERGY CONSERVATION MAKES ENE !! .... DISCOVERING THE HIDDEN BARREL OF OIL !!

Energy Conservation

What is Energy Conservation (EC)?

- **Energy Conservation** is the practice of decreasing the quantity of energy used. It may be achieved through efficient energy use, in which case energy use is decreased while achieving a similar outcome, or by reduced consumption of energy services.

il !!

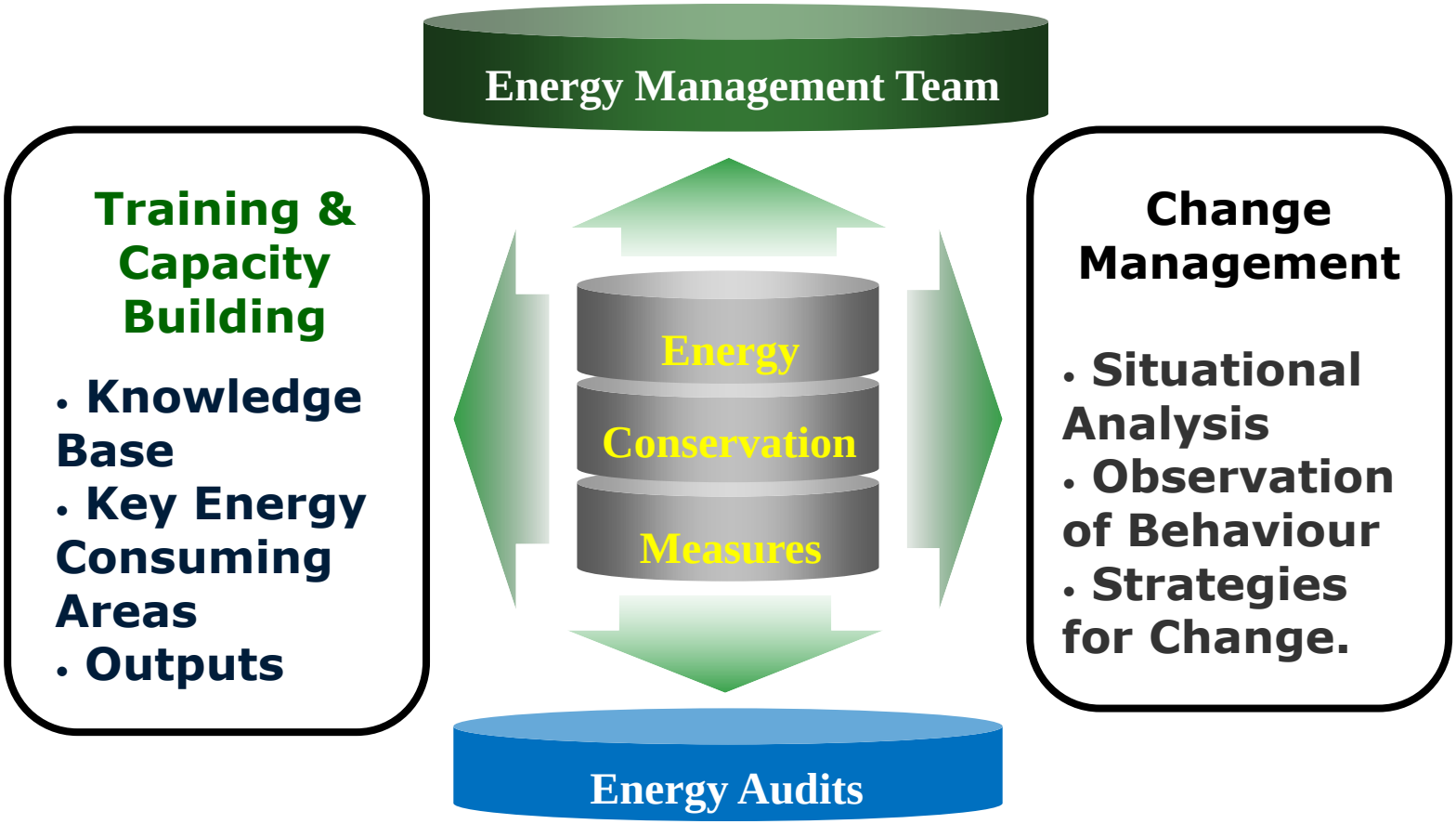
Energy Conservation

DISCOVERING THE HIDDEN BARREL OF OIL !!

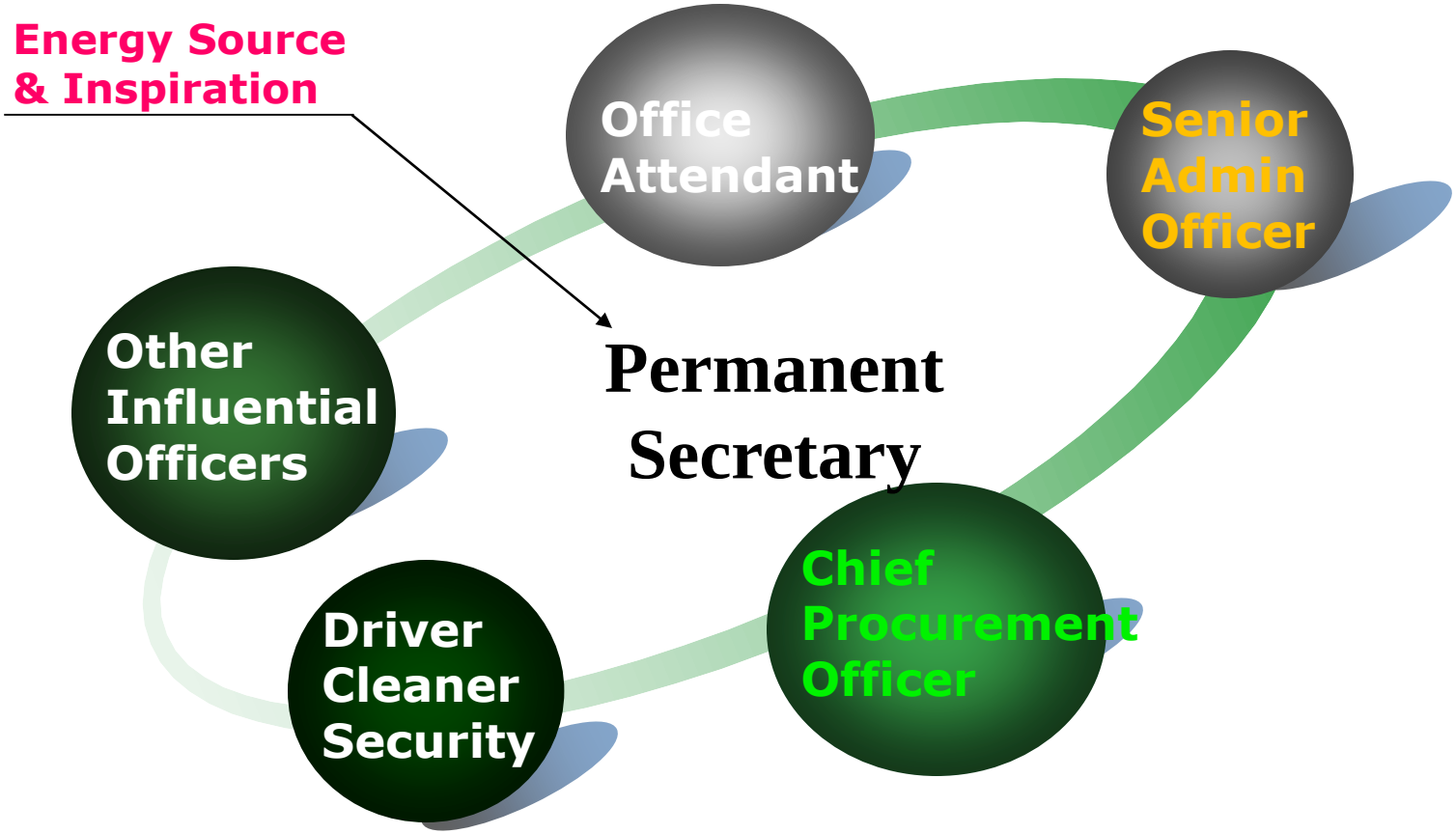
- **Jimmy Carter;** the cornerstone of our policy, is to reduce the demand through conservation. Conservation is the quickest, cheapest, most practical source of energy. **Conservation is the only way we can buy a barrel of oil for a few dollars.** It costs about US$13 to waste it.
- **Jimmy Carter** delivered this televised speech on April 18, 1977.

Elements of the EC Programme

ENERGY CONSERVATION MAKES ENE !! …. DISCOVERING THE HIDDEN BARREL OF OIL !!



Energy Management Team Composition



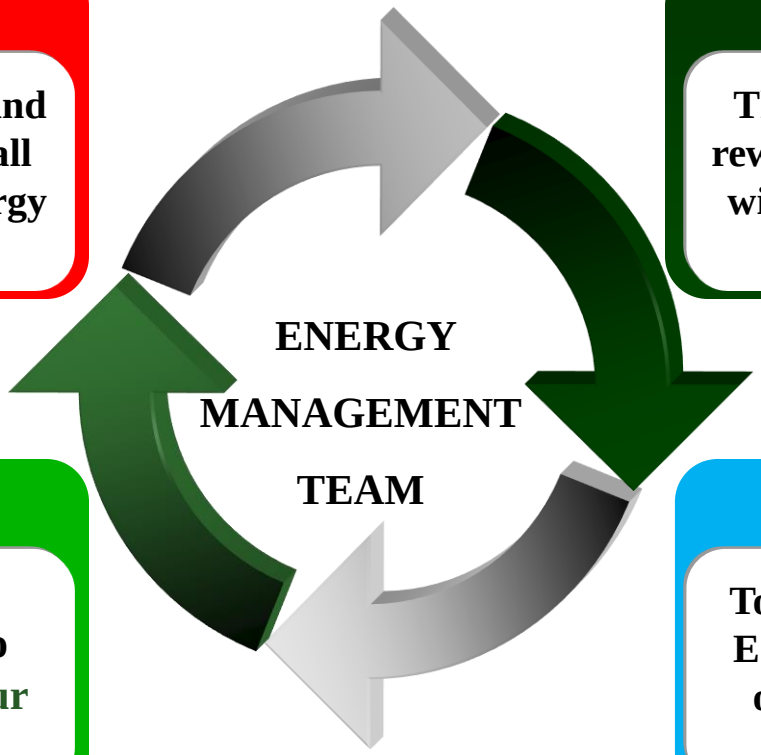
Energy Management Team Responsibilities

EDUCATE

To educate, sensitize, and build the capacity of all staff members on energy savings & ECMs .

RECOGNIZE

The recognition and the reward of EXCELLENCE will energize and sustain this EC programme.



MOTIVATE

To motivate and encourage all staff to change their behaviour regarding EC.

PROMOTE

To promote SUCCESS in EC and highlight victory over the elimination of energy wastage.

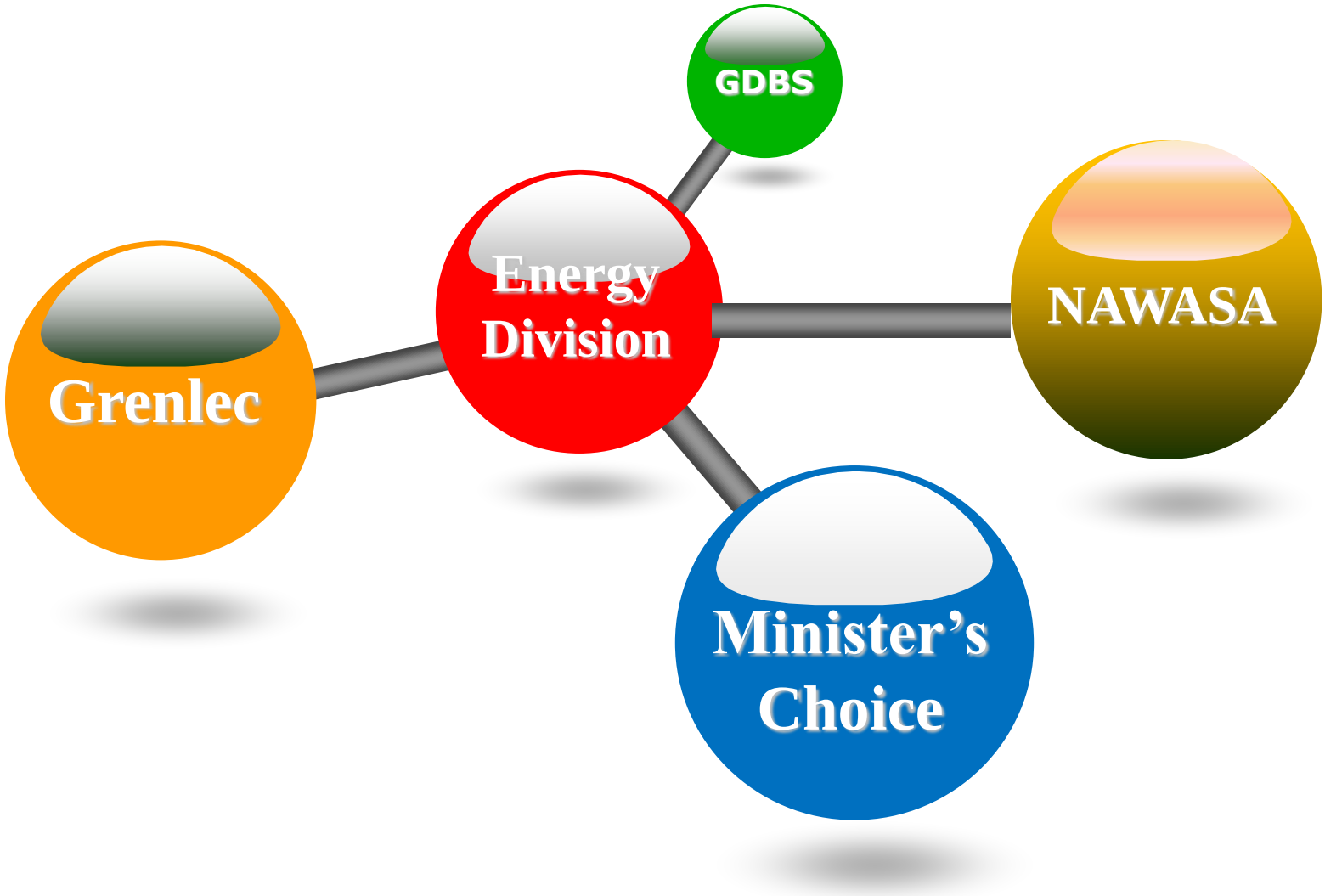
Energy Management Team Functions

1. Identify (ID) the **"Black Belts"** within the Ministry or Institution.

2. Implementation of **Energy Conservation Measures (ECMs)**.

3. **The Reward and the Recognition of Excellence.**

Composition of the Inspection Team



Role of the Inspection Team

ENERGY CONSERVATION MAKES ENE !! .... DISCOVERING THE HIDDEN BARREL OF OIL !!

Monitor/review the activities of the Energy (Committees) Management Teams on a quarterly basis.

Evaluate /assess the performance of the various Ministries and Institutions vis-à-vis the goals, objectives, and targets specified within their EC Action Plans.

To develop protocols for the recognition and the reward of excellence, and to appropriately reprimand low and no compliance, insensitivity to change when and where discovered.

Energy Accounting

ENERGY CONSERVATION MAKES ENE !! …. DISCOVERING THE HIDDEN BARREL OF OIL !!

Energy Conservation $avings

❖ NO-CO$T ENERGY CONSERVATION SAVINGS

- **Turn off lights, AC, equipment when not in use, or the area where energy is used (wasted) or unoccupied.**
- **Close doors and windows in ventilated areas.**
- **Switch off all transformers and inductive loads at the end of the work day, retiring to bed, or leaving the home/workplace/facility.**

Energy Conservation $avings

NO-CO$T ENERGY CONSERVATION SAVINGS

- Consumer electronics use as much as 25% of their power when not in use; stand-by mode (PCs – up to 85%).
- Tame these electricity vampires by unplugging devices between uses.

Energy Conservation $avings

NO-CO$T ENERGY CONSERVATION SAVINGS

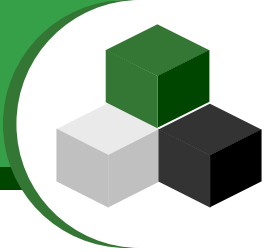
- Pull the plug on chargers. Power supplies lose 30% of the energy they draw from the wall socket. The hotter they get the more wasteful they are.
- Avoid super-size television screens, they are even hungrier than refrigerators (Sony 52”=295W; & 65”=525W).
- Turn off the Cable TV receiver and save 12.5 W per hour.

Low Co$t ECMs

Energy conservation Makes ene !!

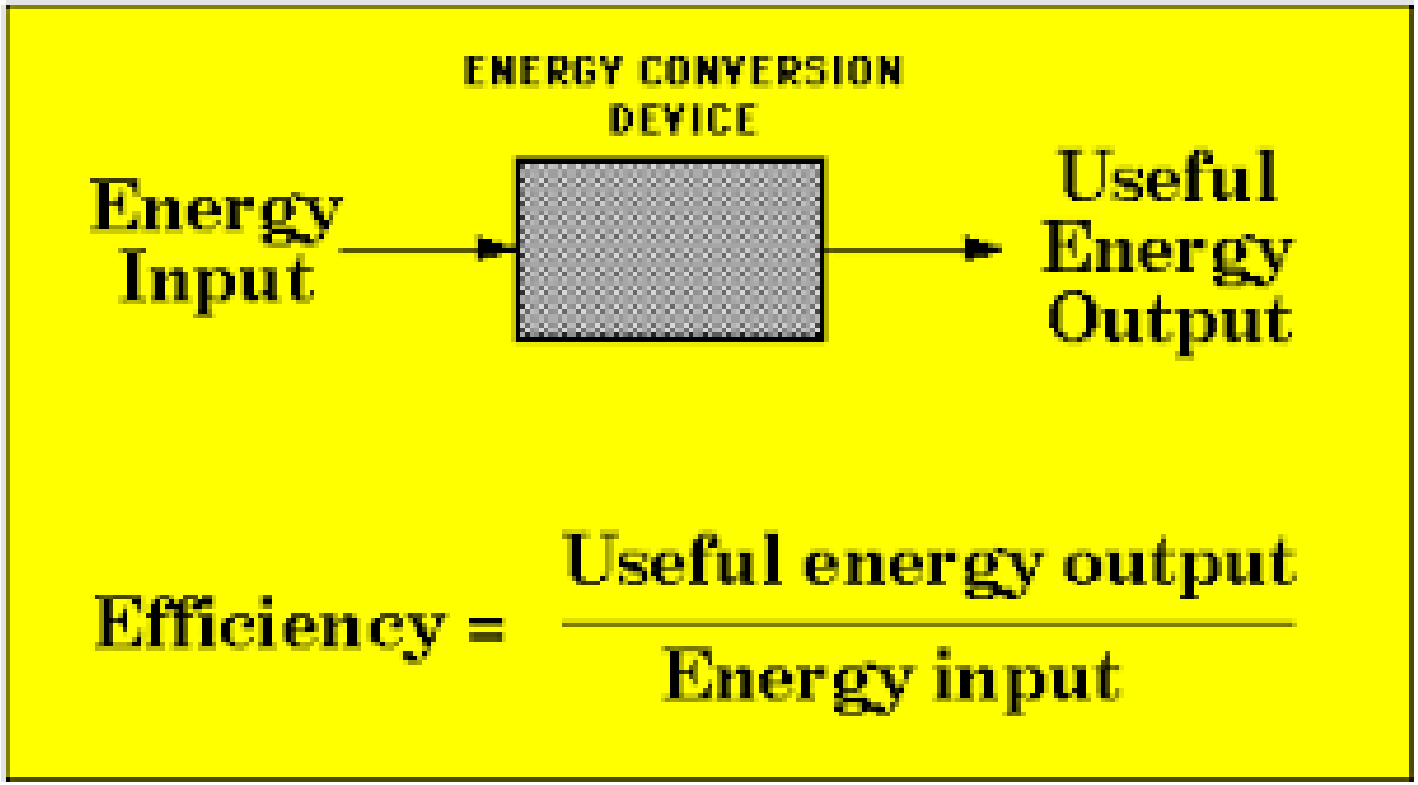
Low Co$t ECMs

Energy Efficiency



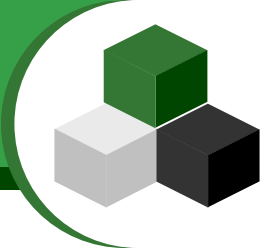
- The phrase 'energy efficiency' is often used as a shorthand to describe any kind of energy-saving measure, though technically it should be distinguished from energy conservation – a broader term which can also include forgoing a service rather than changing the efficiency with which it is provided. Examples of energy conservation include turning down a thermostat in the winter or walking to the shops rather than driving there.

Efficiency Definition



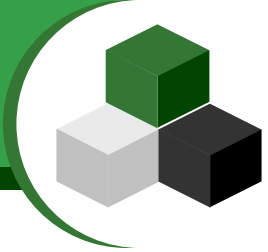
$$\text{Efficiency} = \frac{\text{Useful energy output}}{\text{Energy input}}$$

Energy Efficiency (Cont'd)



- **Energy Efficiency** is a way of managing and restraining the growth in energy consumption. Something is more energy efficient if it delivers more services for the same energy input, or the same services for less energy input. For example, when a compact florescent light (CFL) bulb uses less energy (one-third to one-fifth) than an incandescent bulb to produce the same amount of light, the CFL is considered to be more energy efficient.

Energy Efficiency (Cont'd)



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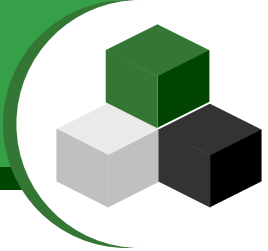
Introduction (Cont'd)



- Energy efficiency is always a good idea. Whether it results in energy savings depends on what we do with the money we saved. In some cases, efficiency savings can be offset by changes in user behaviour – the so-called 'rebound effect'. One example would be that insulating a home may make it more economic for the resident to maintain a higher temperature, increasing the standard of comfort but reducing the energy savings.

Key EE Projects

❖ LED Lighting Retrofits

- Financial Complex… April 2013;
- Ministry of Education;
- Grenada bureau of Standards;
- Customs and Excise Department; and;
- Ministerial Complex… August 2014.

❖ EE Inverter AC Units

- Rural Medical Clinics;
- Grenada Bureau of Standards; and;
- Schools (SASS, Happy Hill & St.George's Anglican Primary).

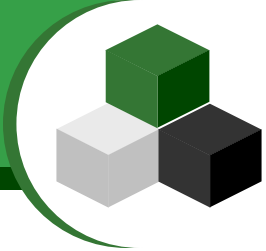
Key EE Projects (Cont'd)

- **PLACEE: TELESCOPE LIGHT BULB Pilot Project Financial Complex.. April 2013;**
  - The bulb exchange programme in the community of Telescope, St. Andrew saw the distribution of light bulbs to approximately 425 households over a two day period. The exchange followed a procedure which allowed at minimum, the exchange of 6 incandescent light bulbs per household for an equivalent amount of the compact fluorescent lamps (CFL).

Key EE Projects (Cont'd)

- **Caribbean energy efficiency lighting Project(CEELP):**
  - The Led Lighting Retrofit involved the exchange of a total of 42 current street lights in the Carenage-Tanteen-Port Highwat areas; and
  - A similar retrofit of 18 street lights on the island of Carriacou in the area of Hillsborough.

Key EE Projects (Cont'd)



The Sustainable Energy for the Eastern Caribbean (SEEC) programme. SEEC is designed to reduce dependency on imported fossil fuels in participating OECS countries.

This will be done by displacing fossil fuels in electricity generation with economically viable investments in renewable energy and energy efficiency.

Key EE Projects (Cont'd)

The three specific objectives of the **SEEC Programme** are:

- Increase the capabilities of actors in the public and private sectors to support, plan, and implement investments in RE and EE;
- Contribute to the development of an RE and EE market that has adequate financing, as well as, an adequate supply of goods and services; and;
- Raise awareness and support an optimal implementation of EE measures and RE technologies.

Energy Efficiency Projects

During the period of April 2013 and August 2014, the under-mentioned projects were implemented

Summary of Energy Efficiency Projects undertaken within the Public Sector in the State of Grenada.

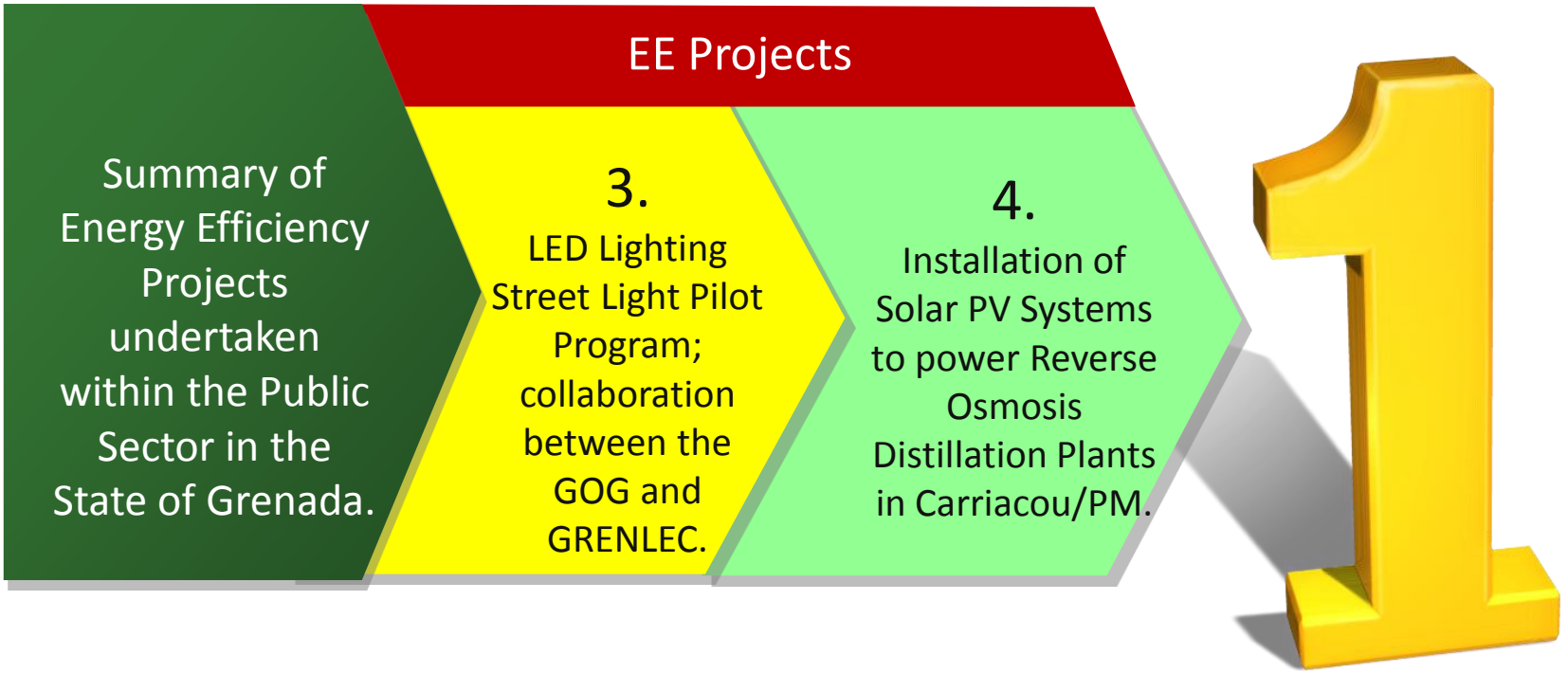
EE Projects

1. LED Lighting Retrofit of Government Complexes and Government Ministries, etc.

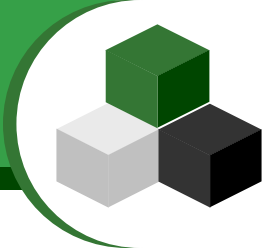
2. Installation of Haier AC Units in Schools , Health Clinics and Government Departments

Energy Efficiency Projects (Cont'd)

During the period of 2014 - 2016, the under-mentioned projects were implemented

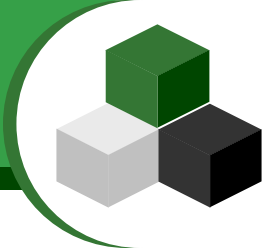


Conclusion



- Improving energy efficiency does not necessarily translate into reduced CO2 emissions: the savings depend on the situation. If the energy is supplied from fossil fuels – such as petrol in a car or electricity from a coal-fired plant – then improved efficiency will cut emissions. But if the energy is supplied by a low-carbon source such as electricity from nuclear or renewables, **then improving efficiency may have little impact on emissions**.

Conclusion (Cont'd)



- Increasing energy efficiency often costs money up-front but in many cases this capital outlay will be paid back in the form of reduced energy costs within a short time period. This makes efficiency improvements an attractive starting point for reducing carbon emissions.
- The scope of the savings – and the techniques required – depend on the situation and location.

Conclusion (Cont'd)

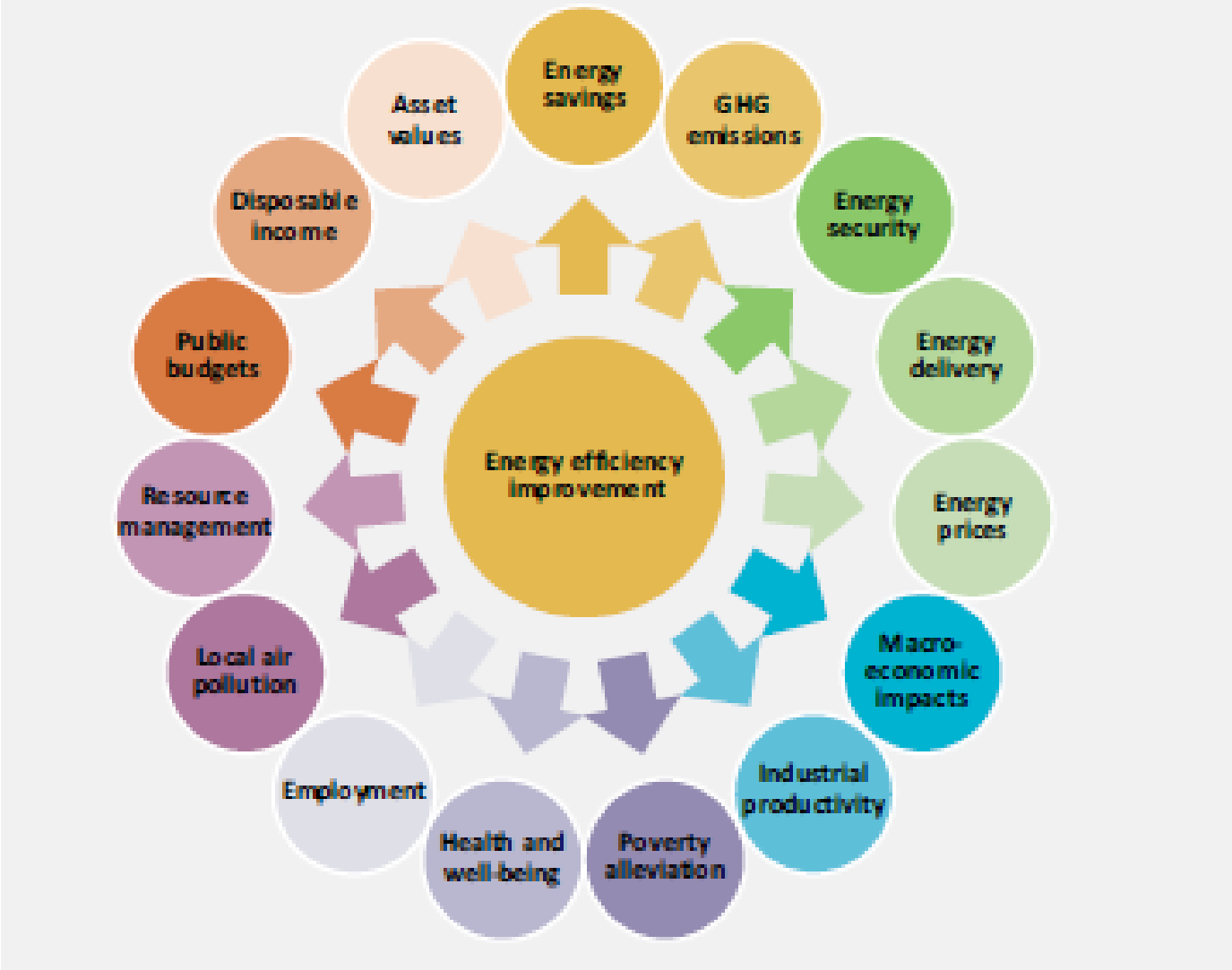
- **Energy is the fundamental fuel for economic and social development**, and energy efficiency measures boost development, by increasing the amount of service gained from every unit of energy.

- **A major driver behind energy efficiency investments is its capacity to lower energy demand and deliver energy costs savings.**

Challenge, Obstacle or Option?

Benefits of EE Technology

The Multiple Benefits of EE

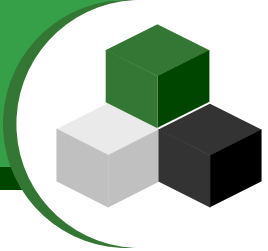


The Multiple Benefits of EE (Cont'd)

International	• GHG emission reduction • Moderate energy prices • Natural resource managment • Development goals
National	• Job creation • Reduced energy related public expenditure • Energy security • Macroeconomic effects
Sectoral	• Industrial productivity and competitiveness • Energy provider and infrastructure benefits • Increased asset values
Individual	• Health and wellbeing • Poverty alleviation (energy access and energy affordability) • Increased disposable income

Source: Spreading the net: **The Multiple benefits of Energy Efficiency**, International Energy Agency, Insights Series 2012

EE Challenges and Barriers

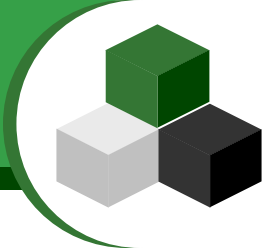


- Energy Efficiency is the most cost effective source of reducing energy consumption, carbon emissions, and reliance on expensive hydrocarbon imports.
- Despite its significant potential for energy savings, energy efficiency is still far from realizing this potential. Why? There is no single answer to this question. A meaningful response requires major research and an analytical effort.

MAIN BARRIERS TO ENERGY EFFICIENCY

- Financial barriers
- High cost of energy-efficient products
- Insufficient technical capacity (ESCOs)
- Lack of reliable information
- High variability of electricity charges to consumers
- The delay in implementing appropriate policies/incentives.

EE Challenges and Barriers



- **In general, the barriers that impede or frustrate the germination and development of EE Programs or Projects can be identified as follows:**
  - ✓ Insufficient dedicated resources (Human & Material);
  - ✓ Ignorance;
  - ✓ Indifference; and;
  - ✓ Insensitivity.

Spelling SUCCESS !!

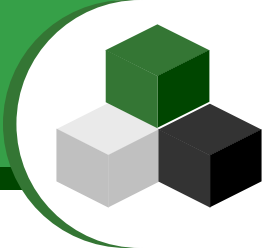
Please note that, **it is Impossible to spell SUCCESS without "U"!**

Eliminating Energy Inefficiency

SPELLING SUCCESS ?!

- ✓ **Special Workshops targeted to educate, build awareness and capacity of the Procurement Officers and the Sales Representatives within our Hardware and Appliance Department/Stores on Energy Efficient Products and devices;**
- ✓ **Incorporate/integrate the Education Curriculum with relevant and related Energy Efficiency Modules at all levels; Early Childhood to Tertiary Education, inclusive.**

EE Challenges and Barriers



- ✓ **The Government and its policy makers stand committed to develop and offer a menu of economic and fiscal instruments and tools to stimulate and encourage increased appetite among its citizens for the most energy efficient products, devices, and services.**
- ✓ **The need to implement Dynamic Public Education and Awareness Programs.**

LOGO

Thank You!