

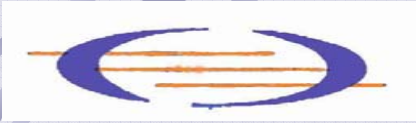
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WEC ETHIOPIA
WORKSHOP ON ENERGY EFFICIENCY
Addis Ababa, Ethiopia
June 29-30, 2009

**PROMOTING ENERGY SECURITY THROUGH
ENERGY EFFICIENCY**

Francis Gbeddy
Energy Commission

GHANA



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PRESENTATION OUTLINE

- **Brief Introduction**
- **Define Energy Security**
- **Why Energy Security**
- **Define Energy Efficiency**
- **Why Energy Efficiency**
- **Impacts of Energy Efficiency on Energy Security**
- **Some Recommended Actions**



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INTRODUCTION

America's dependence on oil is described by President Obama as -

'.. resembling a "shock and trance" cycle. Our growing demand for foreign oil creates skyrocketing energy prices, leading to dramatic calls for energy independence and sudden cutbacks in our consumption that quickly dissipate once the price of oil drops - beginning the cycle all over again'.

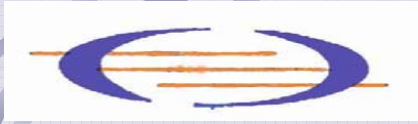


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INTRODUCTION

2006 Report by McKinsey Global Institute:

***‘ There are sufficient economically viable opportunities for energy-productivity improvements that could keep global energy-demand growth at less than 1% p.a.
...which is less than half the 2.2% p.a. average growth anticipated through 2020 in a business-as-usual scenario’.***

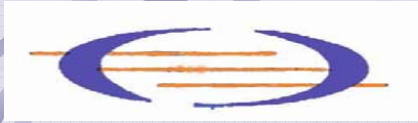


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INTRODUCTION

Observation

Recent years and months have seen increasing attention being paid to energy security and also several practical efforts towards implementing energy efficiency actions.



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Energy Security

Definition

- a) The continuous availability of energy in different forms, in sufficient amounts and at affordable prices.**

- b) A condition in which a nation and all, or most of its citizens and businesses have access to sufficient energy resources at reasonable prices for the foreseeable future, free from serious risk of major disruption of service.**



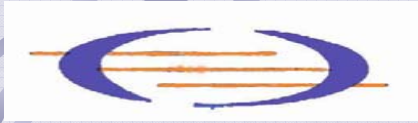
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Why Energy Security?

Energy security could be viewed in terms of

- a) securing energy supply - for consuming nations, or**
- b) securing demand - for producing nations.**

In both ways, energy security is very important and needed for economic development, economic stability and economic security.

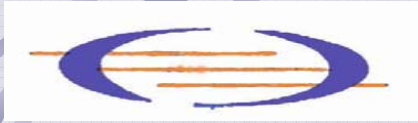


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Why Energy Security?

Some concerns and fears for Energy Security include:

- **Oil and other fossil fuels depletion**
- **High and volatile oil (& energy) prices**
- **Reliance on foreign sources of energy**
- **Geopolitics (terrorism, political instability, disasters)**
- **High energy needs of the emerging nations**
- **Economic efficiency versus population growth**
- **Environmental issues, e.g. Climate change**
- **Renewable and other alternative energy sources**



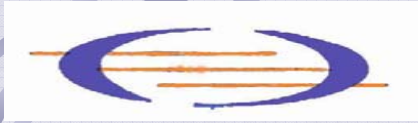
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Energy Efficiency

Definition

Efficient energy use simply referred to as EE is **using less energy to provide the same level of energy service.**

EE is achieved primarily through use of **a more efficient technology** rather than by **changes in individual behaviour** (i.e. conservation) to achieve **lower energy requirements.**



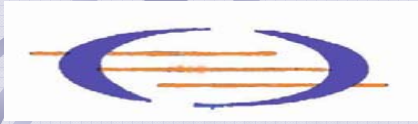
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Energy Efficiency

Definition

Energy Conservation encompasses *using less energy to achieve a lesser energy service* (i.e. through a behavioural change at the expense of comfort) as well as EE.

The term **Energy Conservation** therefore encompasses a wider range of activities including EE.



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Why Energy Efficiency?

Some advantages for embarking on EE:

- **Reduces emissions, global warming and climate change phenomena at low cost;**
- **Cost effective strategy for building economies without necessarily growing energy consumption;**
- **Alternative for new power generation investments;**
- **Ensures sustainable energy development;**
- **Enhances Energy Security and reduces fossil fuel depletion.**



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How Energy Efficiency impacts on Energy Security

‘Energy efficiency is an essential element of national security. Our oil dependence.... imposes large military costs to keep the oil fields secure.’

‘To the extent that energy demand outruns the capacity of the supply infrastructure, the risk of a terrorist disruption having a large impact is increased.’

Quotes from ACEEE Press Brief, March 2003

So, reducing energy requirements pays off, somehow!



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How Energy Efficiency impacts on Energy Security

1) EE reduces the risk of oil shortages and price shocks.

EE keeps demand down, resulting in a reduction of producers' market power. For example introduction of 1970's CAFE standards for auto fuel autonomy.



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How Energy Efficiency impacts on Energy Security

2) EE reduces the risk of damage to energy supply system.

EE reduces the load on all components of energy supply system (power lines, transformers, pipelines etc).

The result is a reduction in risk that, failure of any one segment would damage the entire system.



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How Energy Efficiency impacts on Energy Security

3) **EE protects national economic security.**

- National economies are vulnerable to energy shortages and price shocks only to the extent that the economy is energy-inefficient.
- The more units of energy required per unit of economic output, the bigger the shock to the economy when shortages or price hikes occur.
- EE softens the blows by reducing the impact of shortages or price hikes on the national economy.

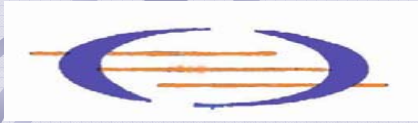


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How Energy Efficiency impacts on Energy Security

4) EE minimizes the effects of global warming and climate change.

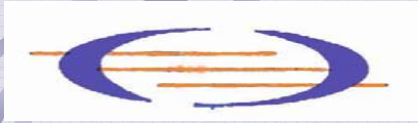
- **Reduced energy requirements resulting from EE implies less energy is produced, hence less pollution.**
- **Reduction in energy requirements results in less additional energy investment requirements which funds could be applied to other sectors.**
- **Minimizing climate change effects can also result in reduced global energy requirements thus securing global energy supplies.**



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RECOMMENDED ACTIONS

- **Promote end-use efficiency to reduce demand.**
- **Encourage energy production & supply efficiency improvements by service providing utilities.**
- **A combination of these two actions will:**
 - **secure national and global energy requirements, &**
 - **ensure sustainable economic growth and development.**

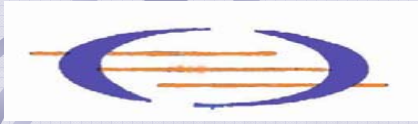


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RECOMMENDED ACTIONS

Possible promotional mechanisms include:

- **Regulation**
- **Fiscal policy interventions**
- **Enhanced mechanisms for Utility EE Interventions**
- **Public Education**
- **Collaboration with international financial and technical/specialized institutions and organizations**
- **Sub-regional and regional cooperation.**



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RECOMMENDED ACTIONS

Regulation

Development of appliance efficiency and labeling standards and regulations. Need to target major energy consuming appliances such as:

- **Air conditioners**
- **Compact fluorescent lamps**
- **Refrigerators, freezers and refrigerator-freezers**
- **Motors, pumps, etc.**

Ban of high energy consuming appliances

- **Incandescent filament lamps for lighting**
- **Importation and use of Used electrical appliances**



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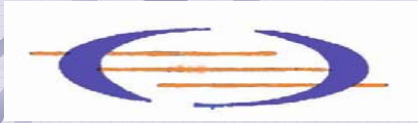
RECOMMENDED ACTIONS

Fiscal policy interventions

Removal of barriers to trade in energy efficiency products.

- **Tariffs, taxes, custom/import fees and charges**
- **Taxes (e.g. import tax, VAT etc)**
- **Customs levies and charges**

Application of Rebate Schemes and other economic incentives as enticement for purchase of high energy efficient equipment/products by the public.

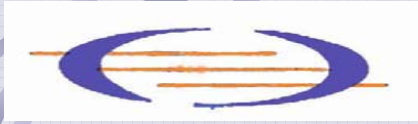


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RECOMMENDED ACTIONS

Utility EE Interventions

Encourage utilities to integrate EE programs as a fundamental component of the utility's business strategy for managing costs while meeting demand and environmental challenges.



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RECOMMENDED ACTIONS

Utility EE Interventions

Utilities should treat EE as the **“first fuel”** – all cost effective EE must be deployed prior to building new supply-side power sources.

EE programs should be made to feature as an option in a utility’s investment program with an assigned ROR in order to compete with supply-side options – EE should be treated as a **“virtual power plant”**.

There is need for a **Level Playing Field** for all options.



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RECOMMENDED ACTIONS

Utility EE Interventions

Regulators must assist to remove disincentives to utility EE investments.

Some important policy responses to align utility incentives with EE investments include:

- **EE Program cost recovery**
- **Lost revenue recovery**
- **Performance incentives**



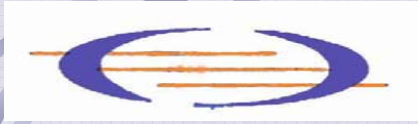
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RECOMMENDED ACTIONS

Public Education

Dissemination of EE information targeted at both public and industry practitioners on

- **the rights and responsibilities of consumers;**
- **awareness building about the benefits of EE;**
- **available EE technological innovations & use;**
- **information on simple EE & conservation measures in homes, offices, industry and commerce; and**
- **seminars and workshops for identified pressure groups and stakeholders.**



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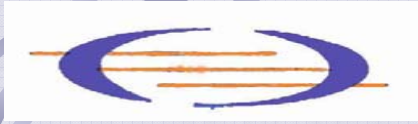
RECOMMENDED ACTIONS

International Collaboration

Required to break technical and financial barriers to embark on EE programs - especially by developing countries.

Collaboration with:

- **Renowned EE agencies & labs (CLASP, LBNL etc.)**
- **Aid agencies such as USAID, CIDA etc.**
- **REEEP**
- **IRENA**
- **Carbon credit & Climate Change agencies and institutions (GEF, MLF, etc.)**



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RECOMMENDED ACTIONS

Cooperation

Sub-regional and regional cooperation necessary for:

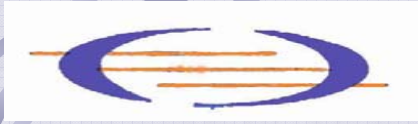
- **knowledge and experience sharing in order not to reinvent the wheel**
- **adoption of uniform EE policies in a sub-region leading eventually to transformation of the appliances market in the sub-region or region.**
- **creation of larger markets for EE products resulting in lower EE product prices .**



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CONCLUDING STATEMENT

- **EE lowers the energy requirements of the system thereby reducing both energy production and energy purchase costs, and providing **energy security** for the individual, the nation and the entire global community.**
- **Achieving a realistic EE potential will require consistent regulatory policies that align the interests of **the customer**, **the utility** and **the investor**.**



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THANK YOU