



# **Climate Policy Forum Cum Workshops**

GHG Reduction Solutions for a Low Carbon Hong Kong

30 September, 2010

Disclaimer: This powerpoint presentation for this forum only reflects the opinion of our guest speakers and do not represent the stance of WWF-Hong Kong.



## Building Energy Efficiency

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30th September 2010



# Presentation Outline

1. Energy Use in HK Buildings
2. Stay in 2 Degrees
3. A Overview on Efforts To Increase Energy Efficiency in Buildings
4. Behavior of Human Beings
5. Technologies for Improving Energy Efficiency in Buildings
6. Building Energy Management
7. Continuous Improvement on Building Energy Efficiency

# 1. Energy Use in Hong Kong Building

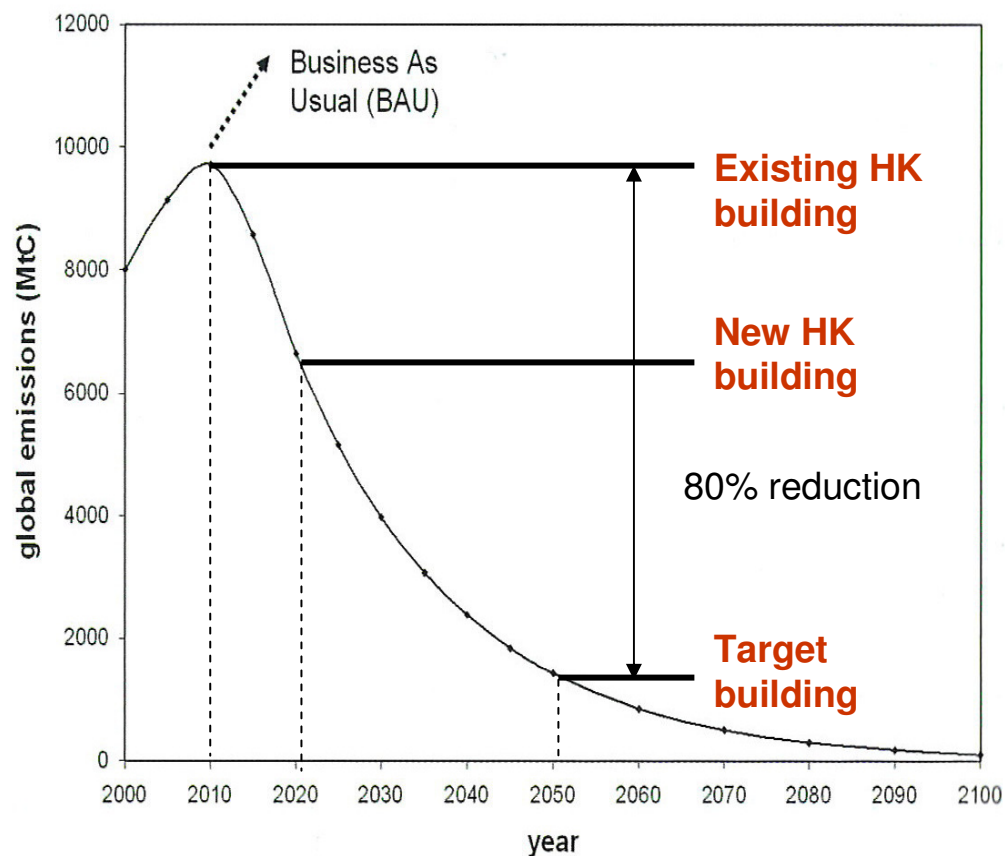
- Building energy use is still increasing
- Commercial and Residential energy used is about 89% of total HK electrical consumption

SO WHAT??  
WHY IS THIS A PROBLEM??

- Two degrees - Threshold for catastrophic climate change

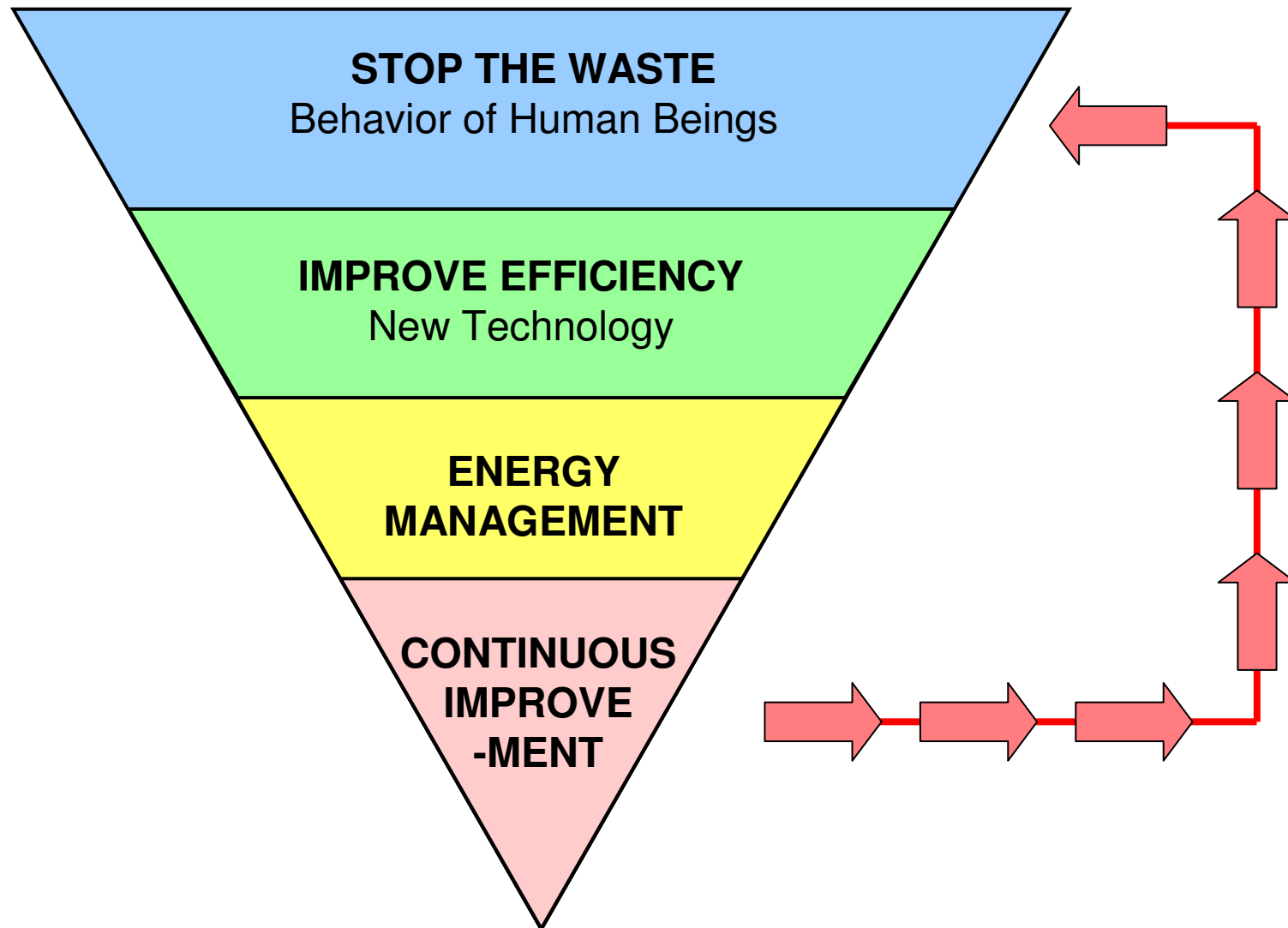
## 2. Staying below 2 Degrees

Global Warming must be kept below 2° C





### 3. A Overview on Efforts To Increase Energy Efficiency in Buildings



## 4. Behavior of Human Beings

### STOP THE WASTE!!!

- Those who supply the energy-using equipment is different from who pay to operate the equipment
- Resist to adopt new technology
- Not considering the life cycle costing
- Energy costs are relatively low
- Misunderstanding energy efficiency is discomfort or sacrifice
- Wasteful habit of occupants – TURN IT OFF!
- Absence of building energy management

## 5. Technologies for Improving Energy Efficiency in Buildings

- Building energy use in the future can be driven by technological change
  1. How much energy could be saved by introducing new technologies?
  2. What is those specific technologies? Their cost and performance characteristics?
  3. What's prevent the popularity of using those technologies?
  4. What options are available to encourage greater energy efficiency?



## 5. Technologies for Improving Energy Efficiency in Buildings

Largest Energy Consumption in commercial building:

- Air-conditioning system : 27%
- Lighting system : 15%
- Office Equipment : 4%

## 5. Technologies for Improving Energy Efficiency in Buildings

### Air-conditioning System:

- Retrofit / Replacement by high efficiency AC equipment
- Better insulation of building façade
- Reduce ventilation rate by demand control system
- Timer control on air-conditioning equipment

## 5. Technologies for Improving Energy Efficiency in Buildings

### Lighting System:

- Upgrading lighting system - LED lighting or T5 lighting
- Lighting control system: Daylight sensor or daylight sensor
- Electronic Ballast
- Local or Task lighting

## 5. Technologies for Improving Energy Efficiency in Buildings

### Energy Efficient Appliances:

- Energy Efficiency Labeling Scheme for appliances and equipment

## 6. Building Energy Management

### Energy Management Manual:

- Continuous commissioning or re-commissioning of equipment
- Reset schedules and reviewing set points
- Guidelines for future renovations

## 6. Building Energy Management

Metering and Monitor the energy use:

- Air-conditioning system
- Lighting system
- Equipment and small power
- Lift installation

## 7. Continuous Improvement on Building Energy Efficiency

- Energy Auditing:
  - Determine the scope of energy audit
  - Forming Energy Audit Team
  - Estimating Time Frame and Budget
  - Collecting Building Information
  - Conducting Site Survey and Measurement
  - Analyzing Data Collected and identifying EMOs
- Upgrading of the existing system to improve efficiency

## Building Energy Efficiency

We can stay below the 2 degree !!!!!!!

# Thank You!