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**How are Business Responding to Climate Change?**  
 Ciara Shannon - Project Director  
 Climate Change Business Forum


 The Climate Change Business Forum is an initiative of the Business Environment Council (BEC) that has been set up to be a platform for industry leaders and climate change specialists to collaborate and address the challenges of climate change in Hong Kong. The CCBF will highlight best practice through its focus on research.


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**Overview**

1. **Stabilising at 2 Degrees**
2. **HK GHG's**
  - Energy Efficiency is vital
  - HK Buildings & Codes
  - HK Transport
  - Consumption Management
  - Attitude and Behaviour Change is vital
3. **Market Mechanisms are vital**
  - Cap & Trade/ Carbon Tax
  - Asian Carbon Hub
4. **The Problems Business Will Face**
5. **Learning By Doing- How?**
  - What Business are Doing is vital
6. **Conclusion**
  - Reducing HK's Footprint


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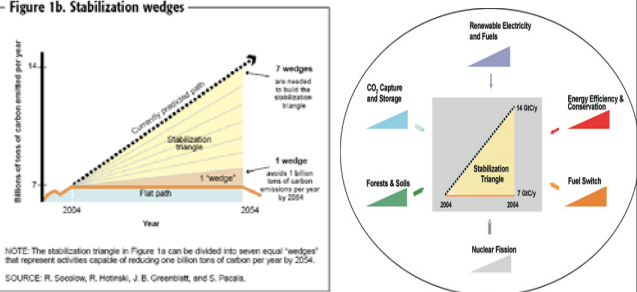
**Stabilising at 2 Degrees**

- Over the last 150 years CO<sub>2</sub> emissions up by 30% to almost 380ppm.
- The 2006 Stern report warns of unprecedented economic crisis if strong action is not taken now. Action now will cost a mere 1% of global GDP by 2050, whereas business as usual could cost up to 20%.
- Also cited that the risks of climate change can be reduced if greenhouse gas levels in the atmosphere can be stabilised between 450 and 550ppm.
- However, the Tyndall Centre for Climate Change Research (& others) concludes that the goal should be no more than 450-400 ppm to stabilize at 2°C.
- To stabilise at 2 degrees = reductions in annual GHG emissions of 60-90% from 1990 by 2050.


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**Solving the Climate Problem**

**Figure 1b. Stabilization wedges**




NOTE: The stabilization triangle in Figure 1a can be divided into seven equal "wedges" that represent activities capable of reducing one billion tons of carbon per year by 2054.


SOURCE: R. Socolow, R. Hottel, J. B. Greenblatt, and S. Pacala.


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**HK – Wedge It**

- Hong Kong needs to decide which wedges are preferable and use them to calculate reduction targets.
- Clocks Ticks

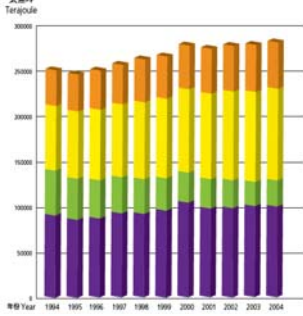



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**A Closer Look At HK's GHG Emissions**

- Hong Kong emits 44.8 million tonnes of CO<sub>2</sub>-equivalent (CO<sub>2</sub>-e)<sub>2</sub> in 2005, accounting for about 0.2% of the global GHG.
- HK's per capita emissions are ~6.5 tonnes (very low). Why so low? = little manufacturing, excellent public transportation, and a diverse mix of fuels including nuclear power & natural gas.
- HK's total GHG emissions in 2005 exceeded 1990 levels by 14%
- GHG's expected to reach 52 million tonnes in 2010 under the Probable Business as Usual Scenario which is about 35% above the 1990 level
- Buildings use= 56% of total energy use. 16% above global average.
- Transport use= 36%

(Source: EMSD, EPD)



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**56% of HK's Energy Use Goes into Buildings**

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Category	Percentage
Space Conditioning	34%
Lighting	19%
Refrigeration	6%
Industrial Process/Equipment	8%
Others (i.e. lifts, cooking, hot water)	6%
Others	6%

That's ~ 16% higher than global average of 40%.

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**Energy Efficiency is vital and saves money**

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- **Space cooling : 33%** of HK electricity end use.
- Combining the right materials when designing a building envelope can greatly reduce a building's energy requirements, increase its life span and ensure consistent performance over time.
- **Water cooled air conditioning (WACS)** are 7% to 17% more efficient when compared with the air-cooled air-conditioning system. This energy saving is achieved with a small amount of fresh water (1% of the flow rate).
- Around 90% of Swire Properties' buildings now operate with water-cooled air conditioning systems saving in the order of 5,000 kWh/year, which equates to over 3,000 tonnes of carbon dioxide emissions.

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**Pussy Cat Building Codes**

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- The majority of existing building environmental assessment methods are **voluntary**
- Hong Kong's current building regulations must be updated to achieve greater lighting & ventilation, insulation, air-conditioning efficiency.
  - ✓ **NEED** mandatory implementation of the Building Energy Codes
  - ✓ **Fast roll out** of Mandatory Energy Efficiency Labelling Scheme for household electrical appliances
- Research shows that 30% of Hong Kong's total electricity could be saved if all commercial buildings adopted the standards set out in BEAM

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**A Market Conundrum**

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**Occupiers**  
 Best position to benefit from energy savings. But not in a position to make investment. "We would like to have energy efficient buildings- there is little choice of properties."

**Investors/ Owners**  
 Don't occupy bldgs. Little incentive. "We would fund energy efficient buildings, but there is no demand for them."

**Developers**  
 Short term focus on financial. "We would ask for energy efficient buildings, but the investors won't pay for them. No regulations to do so."

**Constructors**  
 "We can build energy efficient buildings, but it is costly & the developers don't ask for them." Key players in real estate and construction misjudge the costs and benefits- a major barrier to more energy efficiency in the building sector

**Industry associations in Asia** have so far left energy efficiency initiatives largely to government. This differs from the US and Europe where industry-driven initiatives are one of the leading forces driving energy efficiency.

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**Green Buildings**

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- Three Pacific Place, Swire properties' 34-storey, grade A office reduced construction waste by 15% through effective design modeling.
- Equipped with the latest energy efficient building services technology, including a Miconic 10® lift control system and LONWORKS® building control system.
- The building has been graded 'excellent' by the Hong Kong building environmental assessment method (HK-BEAM) scheme.

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**Green Buildings (2)**

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- The Sunny Bay MTR station -no air conditioning - makes use of the natural environment to control the temperature and lighting inside.
- The canopy drops the air temperature by two degrees Celsius, which usually is enough to make people feel comfortable. During the day, the translucent material lets light in and at night high-efficiency lighting is used, allowing the station to cut 75 percent from the lighting cost of a typical station in Hong Kong.


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## Ma Wan School Project

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- This BIPV school project sponsored by Innovation and Technology Fund and CLP Research Institute, explores different PV technologies as integrated building components in Hong Kong's built environment
- This installation is the first non-government BIPV system with **grid-connection**
- Average savings of 33,757kWh represents **8.71%** of the total electrical energy consumption by the school in the same period



Students of the school attending lessons about PV

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## ~~Demand Side Management~~ Consumption Management

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- Demand side management - not just consider "energy efficiency" and shifting peak demand to off-peak hours, but how to achieve absolute reductions in energy consumption.
- The right incentives - to the utility companies for reducing electricity demand and consumption and ultimately the return on investment in generating capacity.
- Energy Efficiency and understanding end users habits are key.

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## If You Build More Roads You Get More Cars

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- Transport: 36%** of energy end use
- 30% of Hong Kong's vehicles have diesel engines, compared with 19% in Japan, 17% in Singapore.
- Greater mandatory response needed on diesel vehicles.
- HK needs to adopt more stringent vehicle emission standards.
- All vehicles that are pre-Euro and Euro 1 should be off the road.
- Road pricing is an effective way to influence travel demand
- More electric trams/vehicles needed
- Pedestrian access, cycling paths must not be overlooked.



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## A Cap and Trade/ Carbon Tax (price)

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- The emissions trading scheme, is criticised for creating property rights to pollute - encouraging companies to profit by selling the excess.
- Increasing - debate around whether a 'cap and trade' emissions trading regime as well as a carbon tax is the best mechanism to achieve real reductions in carbon emissions while maintaining economic growth.
- Problem with Cap and Trade - no cost to the discharge of GHGs.
- A carbon tax offers certainty about the price of polluting
- But, doesn't give the guarantee the emissions will go down.

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## Asia Carbon Hub. A Matter of Time

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- There is a growing carbon industry in Asia. In 2006, the global carbon market was worth US\$30 billion dollars, of which Asia is a major selling region for carbon emissions reductions, responsible for around 75% of the reductions achieved under the global Clean Development Mechanism (CDM).
- Speculation has already begun about which city will reap the benefits of being the hub of a future Asian carbon market. London plays this role in relation to the EU ETS-- 68 percent of the world's carbon revenues passing through last year.

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## What Companies are Doing (1)

CLP 中電

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- CLP Power Hong Kong- GHG emissions in 2006 were within 2% of 1990 emissions, despite growth of more than 80% in usage since then
- Have a diversification of fuel use specifically nuclear and natural gas which has bought down carbon intensity
- CLP has a voluntary renewable target that will account for 5% of their generating capacity by 2010. CLP's renewable portfolio today includes 16 facilities with a combined capacity of 285 Megawatts
- CLP Energy Services offer energy audits to clients to advice companies in how to save energy. They also offer green energy products through their Australian retail business, TRUenergy.
- Involved in international discussions on climate change including World Energy Council and WBCSD
- CLP conduct a climate risk assessment of all proposed new investments.

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## What Companies are Doing (2)

HSBC

- HSBC is the first bank to go carbon neutral through reducing emissions, sourcing green electricity and investing in offset projects.
- Invested US\$100 million (£50m) for an initiative to tackle climate change in a five year partnership with the Climate Group, the Earthwatch Institute and the Smithsonian Tropical Research Institute (STRI), and WWF in a five-year partnership.
- Priorities include conducting research into the impact of climate change on the world's largest forests and improving management of freshwater systems to increase water security.
- HSBC has also launched an internal plan to educate its workers on the issues of climate change.

## What Companies are Doing (3)

地鐵公司  
MTR Corporation

- The MTR Corporation is one of the first companies in HK to implement an internal policy on climate change as it considers climate change an enterprise risk and so it has assessed its operational, financial, safety, legal, reputational and environmental risks.
- Modeled on the recently established policy of the International Union of Public Transport (UIPT), whose Sustainable Development Commission they currently chair.
- Through this initiative, they hope to make a leading contribution to the Action Blue Sky Campaign launched last year by the Chief Executive.

## What Companies are Doing (4)

CATHAY PACIFIC

- Cathay Pacific has seen a 20% improvement in fuel efficiency since 1998. In addition to their internal measures to upgrade the fleet, control fuel uplift and reduce aircraft weight, they also work with industry partners to support route and air-traffic management improvements. They are also developing a programme for carbon offsetting as part of their overall environmental strategy and commitment to the Hong Kong.

## What Companies are Doing (5)

SWIRE SITA WASTE SERVICES

煤氣  
Towngas

- **Energy from Waste:** Swire SITA, operates two major landfill sites and contracts on six completed sites in Hong Kong. Together, these eight sites generate annually around 80 million cubic metres of methane (CH<sub>4</sub>) - a potent greenhouse gas that can be harmful to the environment but is a potential source of useful energy.
- Swire SITA and Towngas are exploring the feasibility of capturing and converting gas from the WENT Landfill - one of the largest and deepest landfills in the world. The project will be one of the largest 'green' energy recovery and reuse programmes in the world.



## Carbon Disclosure Project

- The Carbon Disclosure Project is an institutional investor voluntary initiative requesting FT500 Global Index companies to disclose investment-relevant information relating to the risks and opportunities presented by climate change and greenhouse gas emissions data from the world's largest companies: 2,400 in 2007. Over 7 years CDP has become the gold standard for carbon disclosure methodology and process.
- Trends in HK: 8 companies responded. CLP most comprehensive response. Korea and India moving most quickly in Asia.

## Mini Cooper D – Green as Hybrids

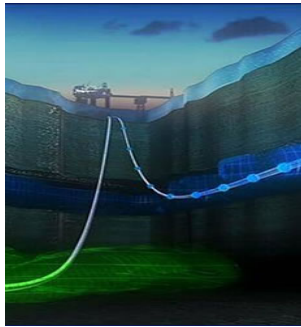
- BMW's Mini Cooper- their cleanest vehicle yet.
- A low emissions car that does not compromise on driving style.



There are about 2 billion cars projected for 2055.

## CO2 Saver

- Carbon capture and storage (CCS) technologies allow emissions of carbon dioxide to be captured and stored— preventing them from entering the atmosphere. CCS presents one of the most promising options for large-scale reductions in CO2 emissions from energy use.
- The difficulty is capturing it at the power plant without sapping too much energy or pushing electric costs up too high.
- The Norwegian company Statoil has been pumping CO2 into a sandstone layer under the North Sea for years. The issues here are long-term safety and short-term legality



## Explosion of Opportunities

- The challenges are immense and require innovative, creative solutions. In terms of a new paradigm for a new way of living- this is the one of most exciting time to be alive.



2007



## Chamber Survey on Climate Change (Oct 2007)

- 7 out of 13 Chambers thought Government initiatives and leadership were needed to show the way forward to businesses and citizens.
- Concern about lack of a climate change policy to reduce GHG emissions
- Nine of the 13 chambers said climate change may threaten business operations and production facilities in Hong Kong and the Pearl River Delta.
- 10 chambers said the business sector could improve energy efficiency to tackle climate change, while 12 of the 13 said the business sector could further promote environmentally friendly products.
- Chambers that took part in Green Peace survey represent 9,000 member companies from the Federation of Hong Kong Industries, the Hong Kong Chamber of Commerce, the British Chamber of Commerce in Hong Kong, the Singapore Chamber of Commerce Hong Kong, the Swedish Chamber of Commerce in Hong Kong and the Association of German Chambers of Industry and Commerce.



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## Thank you



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