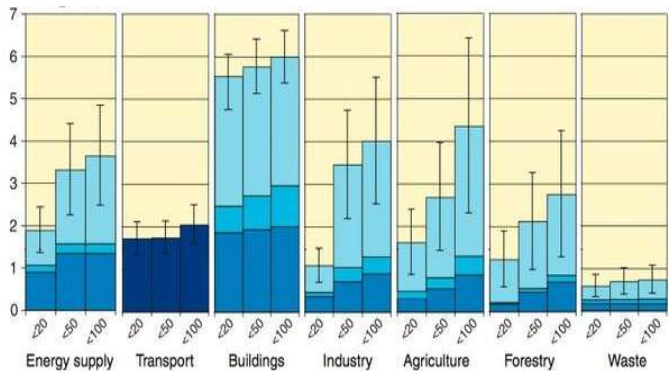
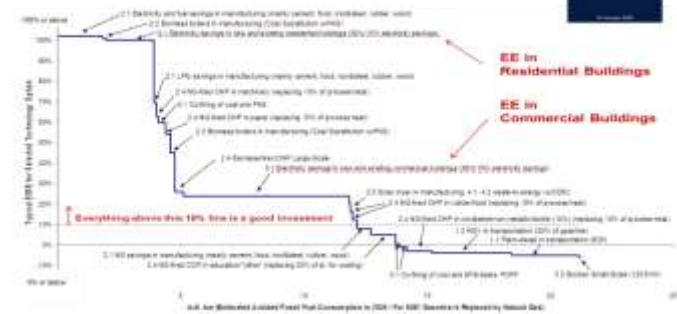


Expensive Not to Go Green: Proven by case studies



**GREEN
SENSE**

Energy Efficiency has a good Economic Internal Rate of Return
(Input to 9th Malaysian Plan by Danida, 2005)



By:

Greggers Reimann, Regina Ng and CK Tang*

IEN Consultants Sdn Bhd

www.ien.com.my

(* Now with gBEET)

Contents

- Building Sector and CO₂ savings potential
- Barriers, incentives, carrots and sticks
- Case studies
 - LEO building (built)
 - ST Diamond building (built)
 - KKR2 building (open tender)
 - Experiences abroad



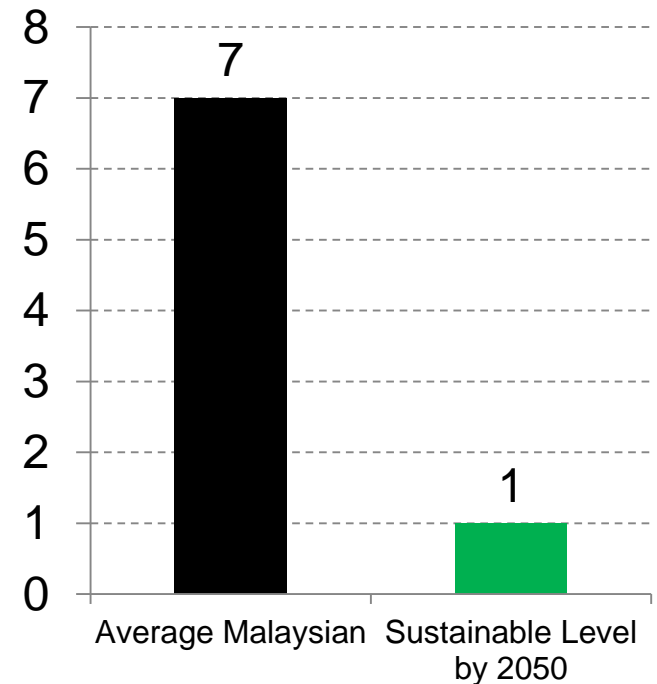
The Global Sustainable CO₂ Emission Goal

GREEN BUILDINGS play a key role in achieving this goal



1 ton CO₂ emission challenge at COP15, Copenhagen, 2009

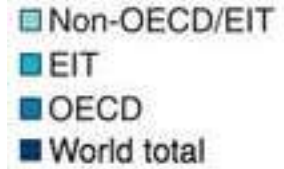
Ton CO₂
emissions per
person per year



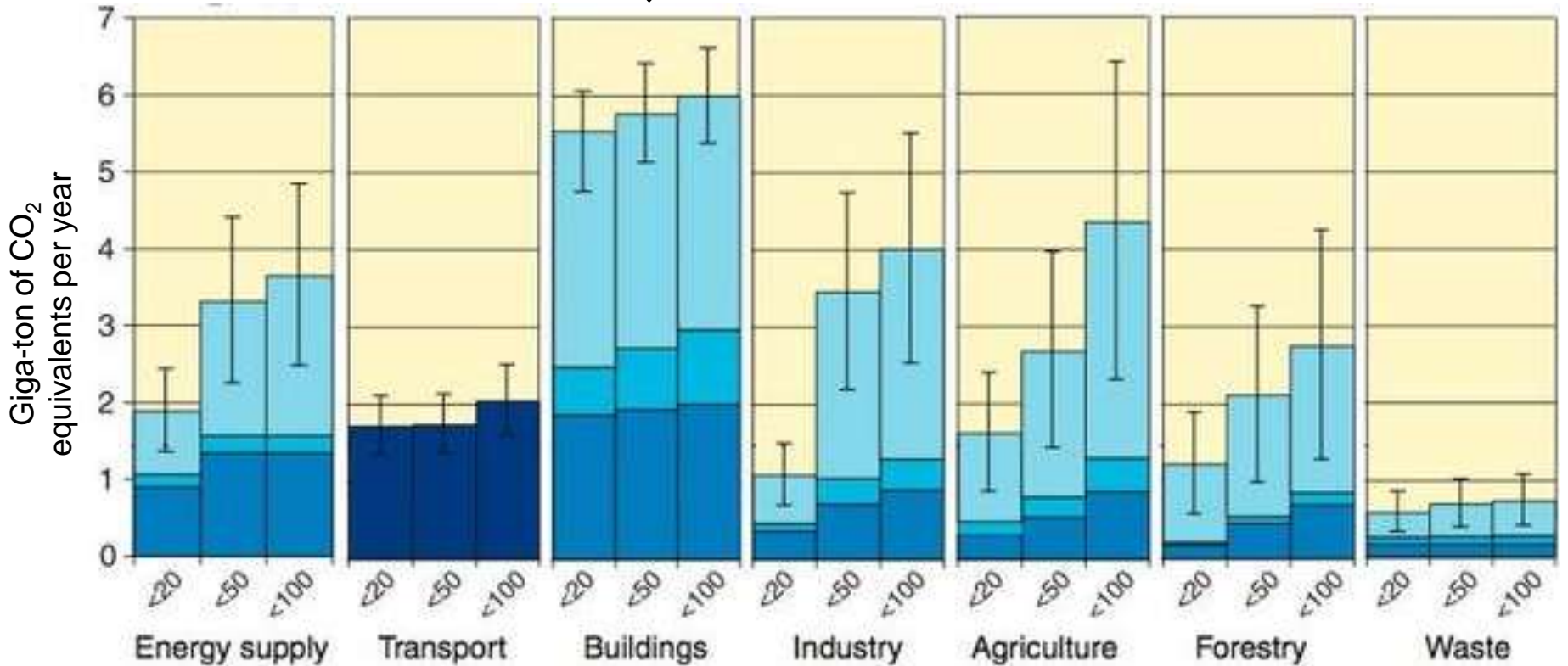
World average (2010):
5 ton CO₂ per person

IPCC REPORT

Cheapest and largest CO₂ savings in building sector



CO₂ savings

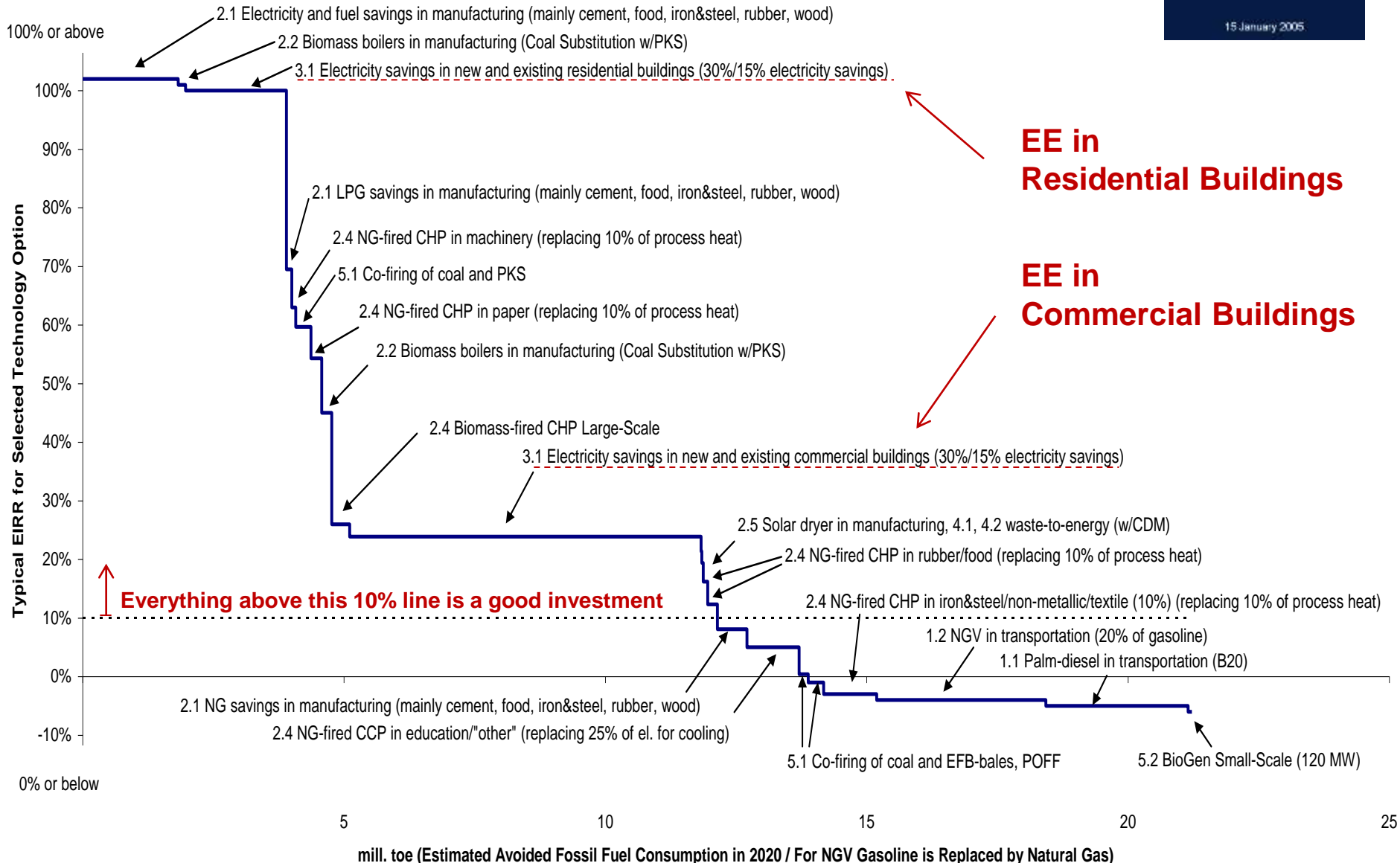


US dollars / ton CO₂ equivalents

Cost of CO₂ savings

Energy Efficiency has a good Economic Internal Rate of Return

(Input to 9th Malaysian Plan by Danida, 2005)



CASE STUDY

LEO building (KeTTHA)



Two tenders

- without energy efficient features
- with energy efficient features

Key data:

- Gross Floor Area: 20,000 m²
- Energy Index: 114 kWh/m²/year
- Additional EE construction cost: 5%
- Payback: 5 years
- Annual energy savings: ~ RM 600,000

**2006 Winner of:
ASEAN Building Energy Award**



Ministry of Energy, Green Technology and Water, Putrajaya, Malaysia
Year of completion: 2004

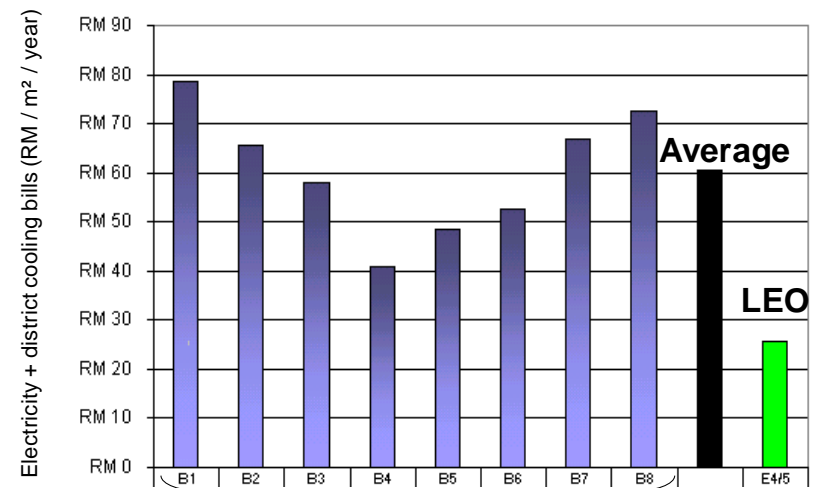
Energy Efficiency (EE) Features:

- Daylighting
- EE lighting
- EE office equipment
- EE ventilation
- Controls & Sensors
- Orientation
- Insulation
- Energy management

Findings

- 5% extra cost
- 50% energy savings
- 5 year payback

Energy bill comparison (RM/m² year)



8 neighbouring office buildings

CASE STUDY

ST Diamond building



Client's Need Statement

- landmark building with regards to design
- landmark building with regards to sustainability

3-minute video of sustainable features: www.youtube.com/watch?v=3H_sXCtDayc

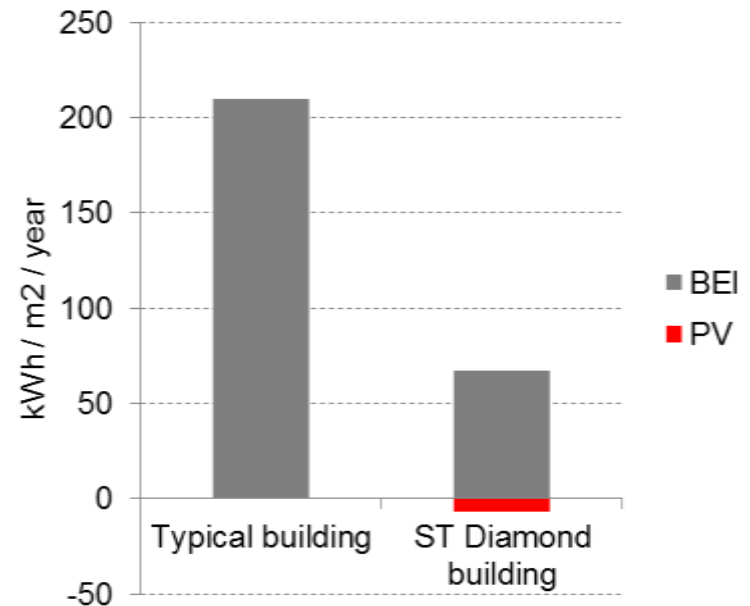


Year of completion: 2010

Photo credit: ACICC

Findings

- 6% extra cost
- 66% energy savings
- 3.5 year payback



Good Economy in Energy Efficient and Green Buildings

Malaysia

- 5% extra construction cost
- 50% reduction in energy use
- 60% reduction in water use
- 5 year payback

Source:
IEN Consultants, 2012

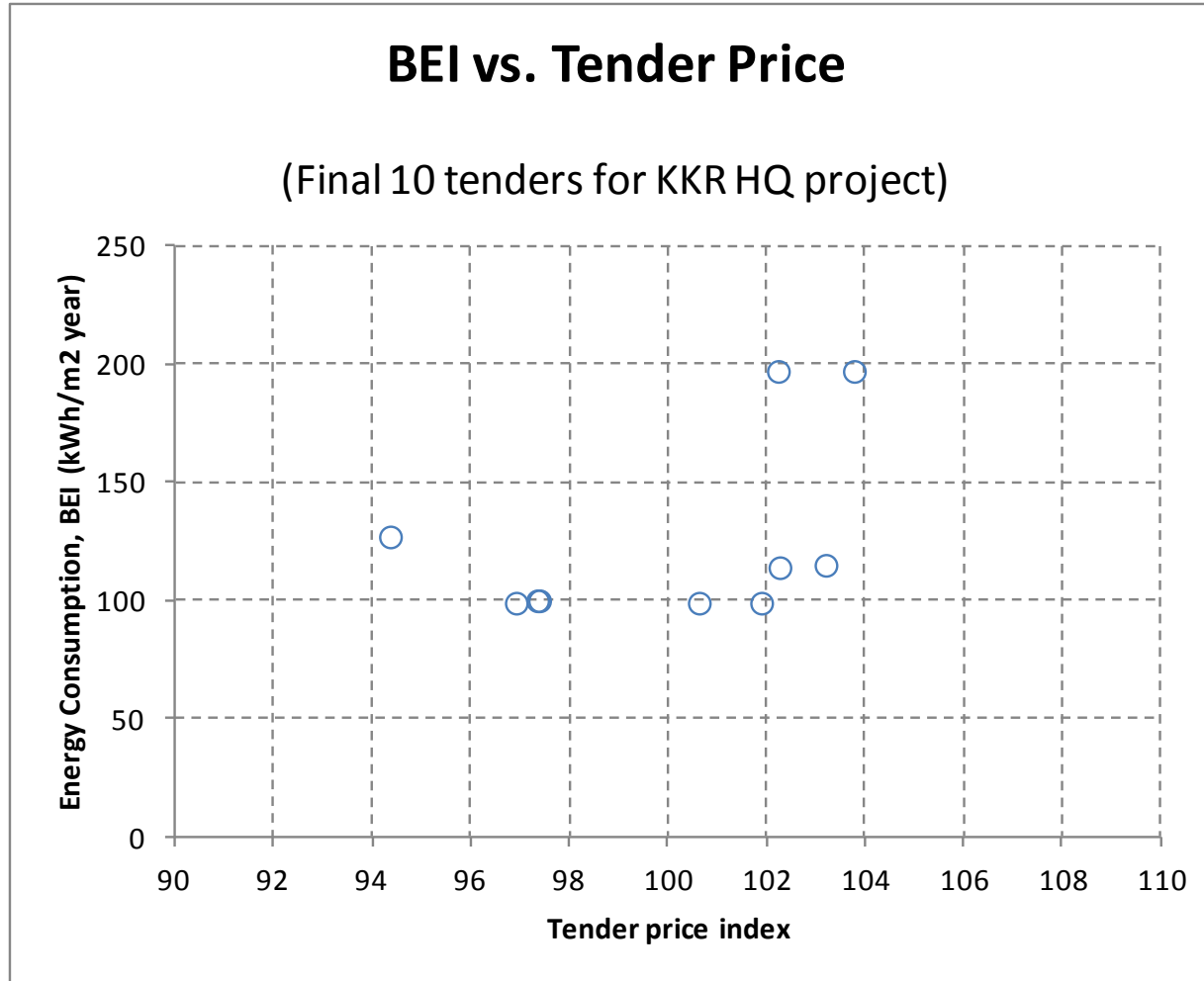
United States

- 2-7% extra construction cost
- 64% higher sales price
- 36% higher rental rates
- 5% higher occupancy rates

Source:
US National Study, EnergyStar and LEED buildings, 2008
NB: Building location skews numbers

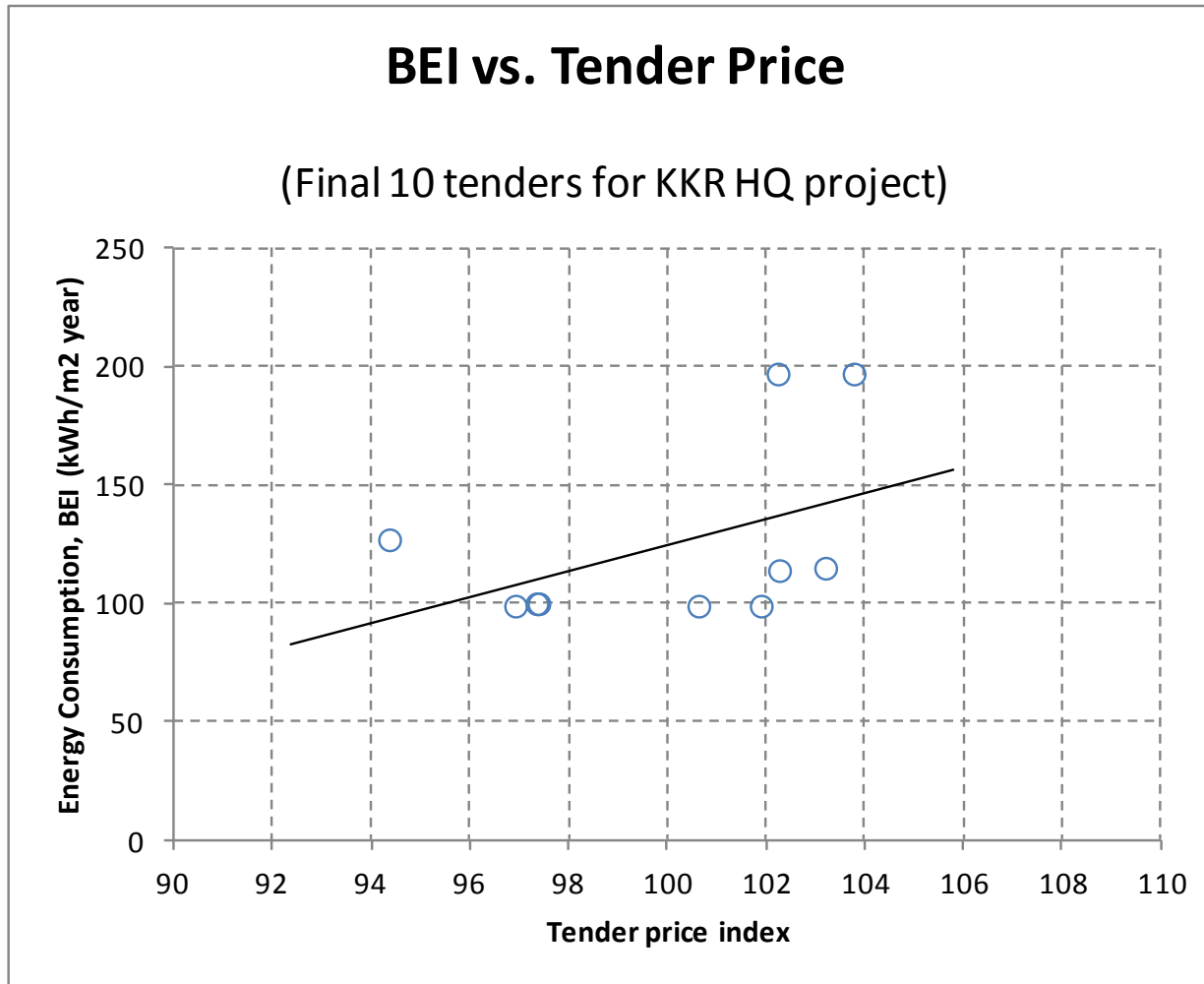
Conclusion:
Expensive not to be energy efficient

No / Low Cost for Energy Efficiency



Public tender for Government Office Tower in Kuala Lumpur

No / Low Cost for Energy Efficiency



Another example:

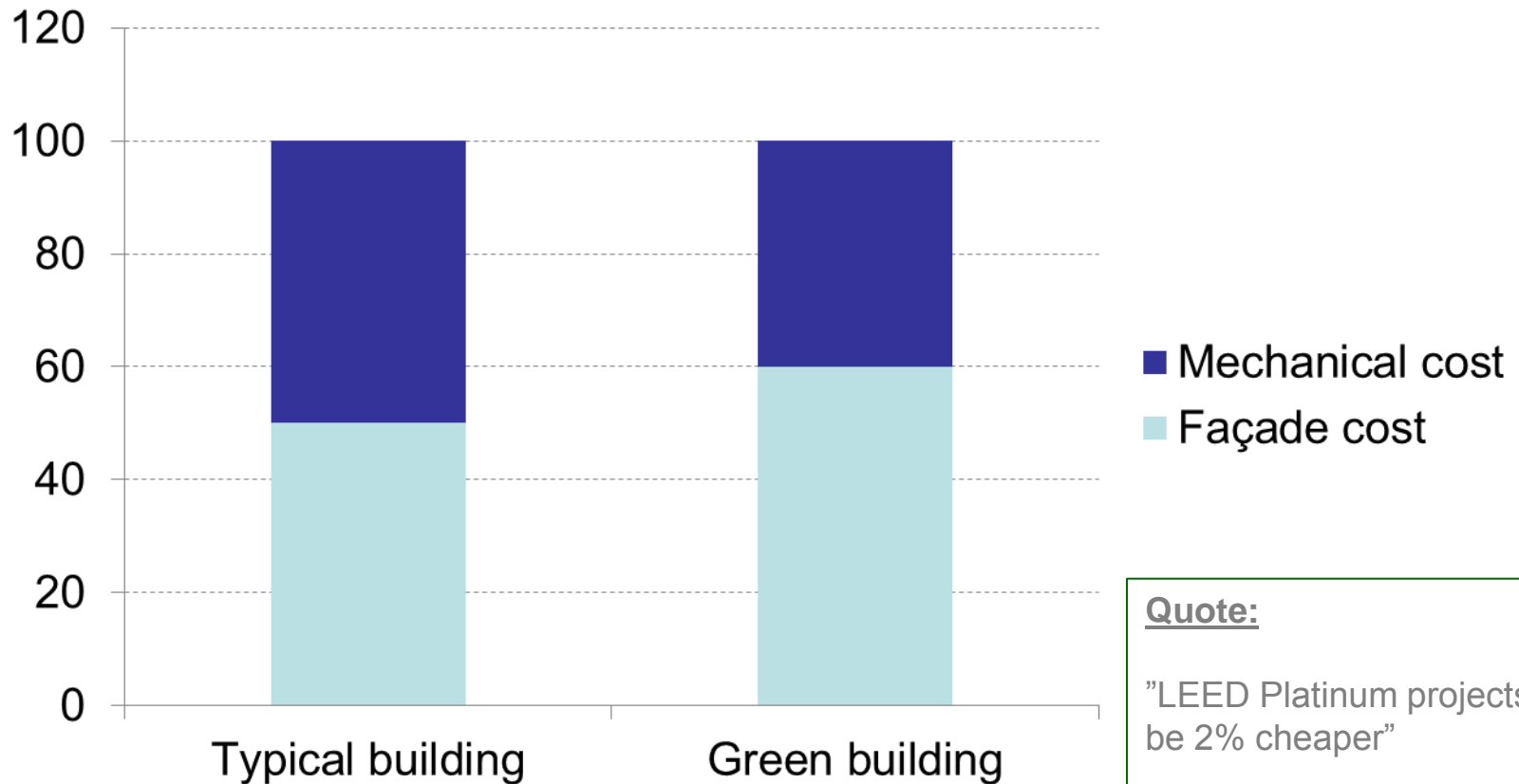
LEED Platinum projects can be 2% cheaper

Bill Odel, HOK Group (WGBC, 2010)

Public tender for Government Office Tower in Kuala Lumpur

Initial Cost Shifting for Green Buildings

The overall cost for green buildings can remain roughly the same
- or even become smaller



Quote:

"LEED Platinum projects can be 2% cheaper"

Bill Odel, HOK Group (WGBC, 2010)

Green Building Drivers & Barriers

Drivers



Barriers



BOOT

Build, Own, Operate and Transfer

- A 20-year perspective changes the picture completely
- Promotes green and sustainable building practices to be adopted
- Energy efficient measures are adopted
- Water efficient measures are adopted
- Durable low-maintenance measures are adopted

Quote from BOOT builder at Dubai conference (2009):

“I want a building that is better than LEED Platinum, not only because it is green, but because it is the cheapest option”

Advertising against Energy Efficiency

HITACHI
Inspire the Next

AERO

ONE TOUCH
eco-fresh
SILENT
COOL



Slaves Cool
Saves Cool
Sleep Mode Timer

Cleaner and fresher air
Feel the difference at rest
and at work. The Aero
freeliner on the stove

One Touch Silent Cool
One touch of the "ECO" button to a heat-seal

Washable Eco-Fresh Filter
Hitachi's new Eco-Fresh Filter can be washed and re-used with ease, without losing its effectiveness. As its large holes and rebars, it traps and filters out environmentally-friendly dust.

Green Fin Condenser
Hitachi's new Green Fin condenser is rust-resistant and extremely durable, lasting up to 3 times longer than standard types. Air-cool performance is greatly improved, maintenance cost is reduced, and it's extremely kinder on the environment.

- One Touch Silent Cool • Inverter Airway Control • Soft & Quiet DC Power System
- No Ozone Depletion • Compact & Light Weight • Eco-Friendly
- No External Gas Refill Required • Safety Extra Lock and Abolish Oil Cut
- High Efficiency Rotary Compressor

Always Refer to the package or brochure for details only.



FREE*

Starting 19 January, an exclusive imported windbreaker comes FREE with every purchase of a Hitachi air-cond. *Hurry, while stocks last.*

**Duty Free & Project sales excluded.*

30th Anniversary 1971-2001

FREE*

Starting 19 January, an exclusive imported windbreaker comes FREE with every purchase of a Hitachi air-cond. *Hurry, while stocks last.*

*Duty Free & Project sales excluded.

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QUALITY AND RELIABILITY. THE LASTING TOUCH.

Hitachi RAS-1200P/1.5HP R2,500 (incl. GST)	Hitachi RAS-1200P/2HP R3,700 (incl. GST)	Hitachi RAS-1200P/2.5HP R4,200 (incl. GST)	Hitachi RAS-1200P/3HP R4,800 (incl. GST)	Hitachi RAS-1200P/3.5HP R5,200 (incl. GST)	Hitachi RAS-1200P/4HP R5,800 (incl. GST)	Hitachi RAS-1200P/4.5HP R6,200 (incl. GST)
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Tel: 03-7546 9100 Fax: 03-7546 9101

New Straits Times
January 2002, Malaysia

New and Energy Efficient Approach

HITACHI
Inspire the Next

AERO

ONE TOUCH
eco-fresh
SILENT
COOL

30th Anniversary 1971-2001

FREE*

QUALITY AND RELIABILITY. THE LASTING TOUCH.

HITACHI SERVICE CENTRE
FINLAND SERVICE CENTRE
KUALUMPUR SERVICE CENTRE
JOHORE SERVICE CENTRE

New Straits Times
January 2002

Energy rating 1 to 5-star

Appliance energy rating (equals the number of stars)

Model information

Energy consumption (in kWh/year)

Energy savings is based on comparison with a three-star rated model

PENGUNAAN TENAGA
ENERGY CONSUMPTION

Peti Sejuk Refrigerator

5

Penggunaan Tenaga Purata Setahun
Average Energy Consumption Per Year
662 kWh/year

Penggunaan Tenaga Produk ini Adalah Menggunakan 25% Lebih Cakap Daripada Produk Basah
This Product is 25% More Energy Efficient Than Average Product
Diuji Mengikut / Tested According to SISO 6060, 1994


Suruhanjaya Tenaga www.ett.gov.my

Energy Efficiency Label for:

- Air con
- Fridges
- TVs
- Fans
- Motors

Suruhanjaya Tenaga, 2010

Good experience with investment in energy efficiency

Conclusions by 3rd party evaluation report 

Go'Energi The Danish Energy Saving Trust

- Cheaper to save 1 kWh than to produce 1 kWh
- Electricity savings funded by small electric tariff, but consumers got money back 10-fold
- 1,000 GWh electricity saved annually

Investment back 10-fold

Final Slide



Energy Efficient Stamp series from Post Malaysia

"Thank you"

