



# GREEN *Campus*

## Climate actions at University of Copenhagen - Who, What, Why, How

Sustainable SCANDinavia event, March 31, 2009

Presentation by  
Claus Ravn, teamleader Green Campus



## Four campuses in Central Copenhagen – 1.000.000 m<sup>2</sup>

### City Campus

Faculty of Law  
Faculty of Science  
Faculty of Social Sciences  
Faculty of Theology  
Central Administration

### North Campus

Faculty of Pharmaceutical Sciences  
Faculty of Science  
Faculty of Health Sciences



### Frederiksberg Campus

Faculty of Life Sciences

### South Campus

Faculty of Humanities





## The largest university in Scandinavia

- 37,000 students
- 7,500 employees, including 5,000 scientists
- 8 Nobel prizes
- € 800 million turnover
- Ranked:
  - no. 8 in Europe og no. 45 in the world  
(Shanghai Jiao Tong, 2008)
  - no. 34 in Europe and no. 93 in the world  
(Times Higher, 2007)



# CLIMATE ACTION UNIVERSITY OF COPENHAGEN

**RESEARCH &  
DISSEMINATION** IARU INTERNATIONAL  
SCIENTIFIC CONGRESS ON CLIMATE CHANGE

**CLIMATE  
EDUCATION & DISSEMINATION**

**GREEN CAMPUS** REDUCING THE UNIVERSITY'S  
CARBON FOOTPRINT

Study more: [www.climate.ku.dk](http://www.climate.ku.dk)





## Member of IARU (International Alliance of Research Universities)

With

- Australian National University
- ETH Zürich
- National University of Singapore
- Peking University
- University of California – Berkeley
- University of Cambridge
- University of Oxford
- The University of Tokyo
- Yale University

At the IARU Climate Congress March 2009 in Copenhagen:

- Workshop about "Greening Universities"
- Announcement of common IARU reduction targets
- Presentation of a new Tool Kit for universities going green

**[www.iaruni.org/sustainability](http://www.iaruni.org/sustainability)**



## Energy Action Planning in the strategic levels

### **Overall strategy for the university – “Destination 2012”, 2007**

- University of Copenhagen must be one of the most sustainable universities in Europe by 2012



### **“Strategic Actionplan 2008-2012”, September 2008**

- There needs to be made green accounts, strategy and actionplans for reduction of environmental impacts, sustainable solutions, a carbon neutral building and involvement of students and employees



### **“Faculty Contracts”, carrying out the Strategic Actionplan, 2009**

- Faculties are responsible for own energy efficiency, yearly review, local energy management, proposals for energy saving initiatives
- Team Green Campus are responsible for green accounts and overall energy action planning



## Goals for Green Campus at the University of Copenhagen

- **Energy consumption shall be reduced to a level that is 20% below that of 2006, measured as energy consumption per man year for staff and students**
- **CO2 emissions from energy consumption shall be reduced to a level that is 20% below that of 2006, measured as CO2 emission per man year for staff and students**
- By the end of 2009, 80% of all purchases at the University of Copenhagen shall be based on purchase agreements and, by 2013, at least 75% of all purchases via purchase agreements shall require sustainability
- The University of Copenhagen will develop guidelines for physical planning and will account for the sustainability of all physical plans and projects
- The University of Copenhagen will make tools etc. available to others and communicate initiatives and experiences to the outside world

Goals were approved by the university's board in October 2008





## WHY

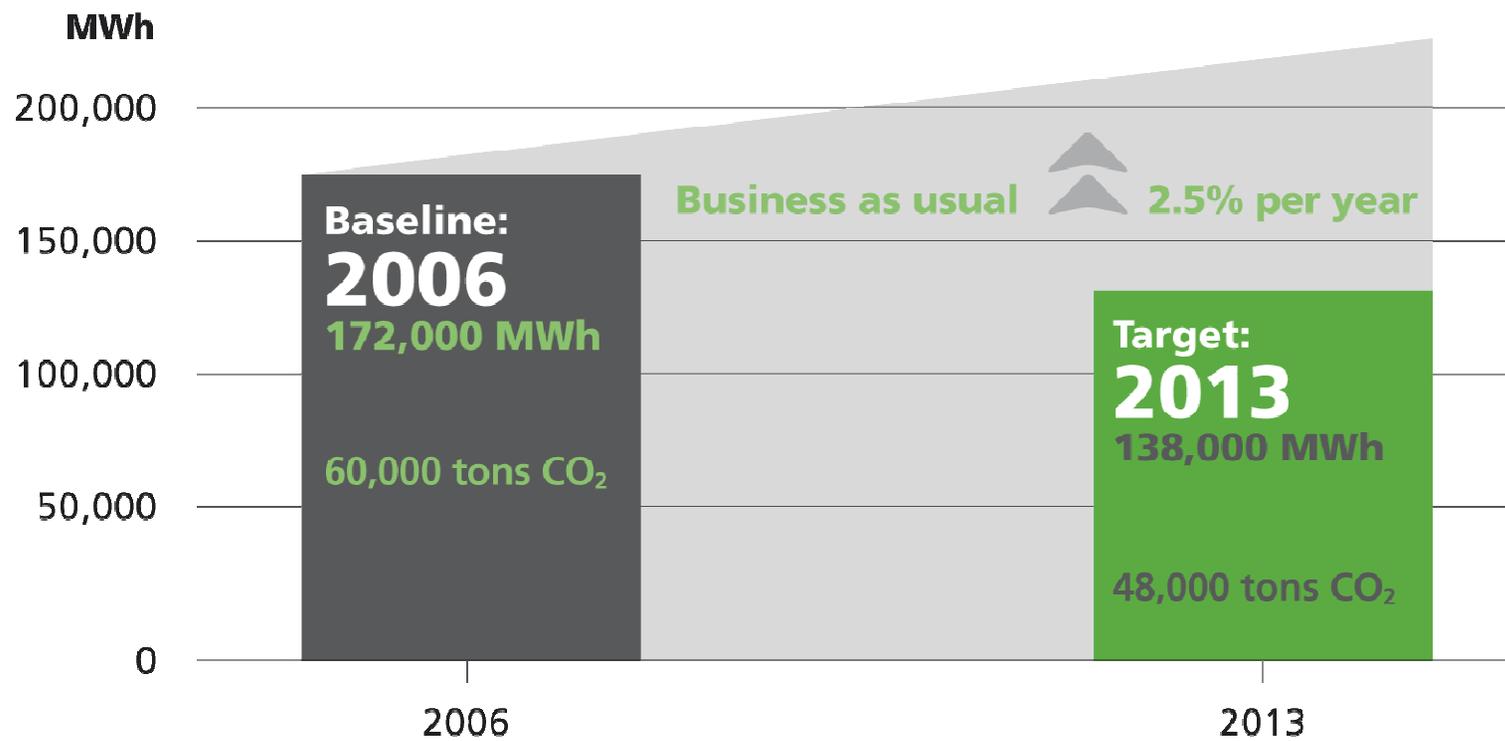
### Energy Action Planning

The Energy Action Plan helps the university to reduce its CO<sub>2</sub> emissions, having a positive effect on the global climate and demonstrating a social responsibility, that can contribute to a positive reputation.

By means of the action plan's financial model and fiscal incentives, reductions in its energy consumption, can at the same time release more money for the core activities – education and research.

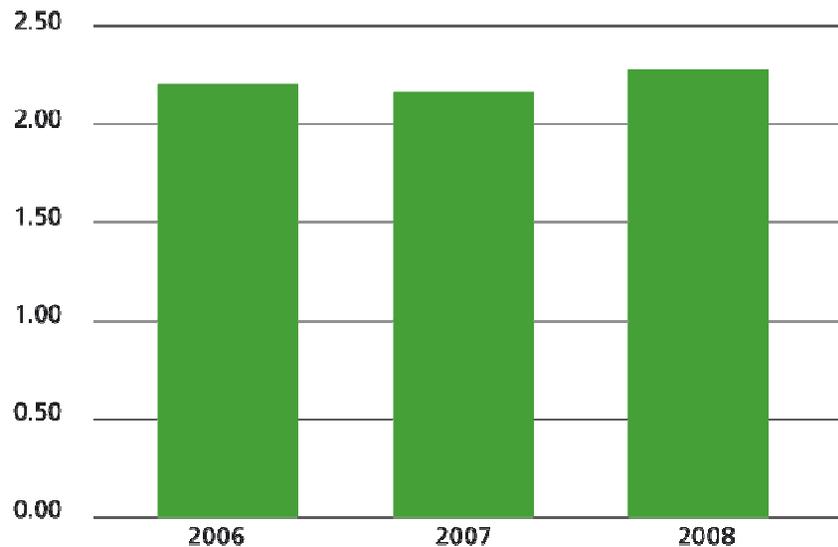


## The challenge of the targets



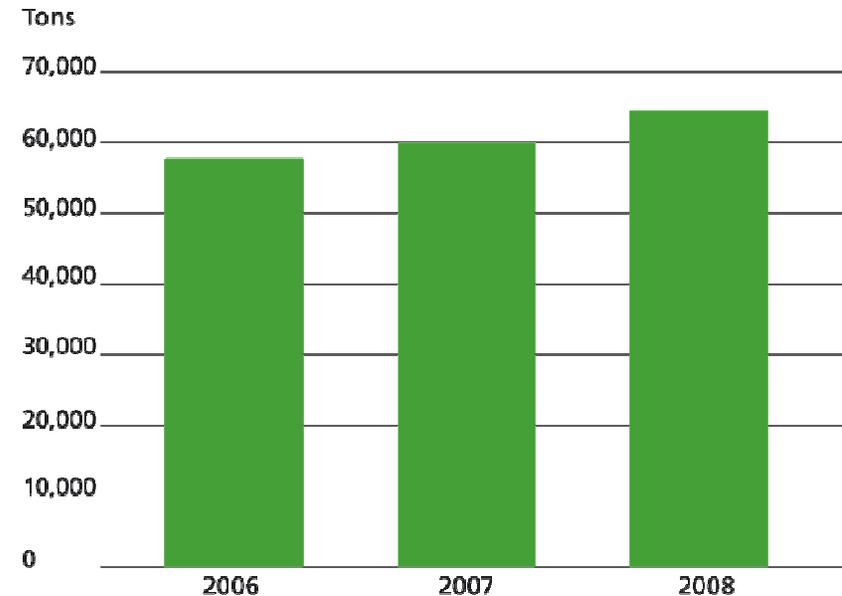
## Green facts – CO<sub>2</sub> emissions 2008

CO<sub>2</sub> per full-time equivalent student and staff member



*Compared to the level of activity at the university, CO<sub>2</sub> emissions have increased by an average of 1.5% per year.*

Total CO<sub>2</sub> emissions for the University of Copenhagen



*Between 2006 and 2008, growth in total CO<sub>2</sub> emissions from the University's own activities was 7.5 % per year.*

The university receives almost all its energy supply from external combined heat and power plants that provide both electricity and district heating. Electricity accounts for the greater part of our CO<sub>2</sub> emissions; more than twice than that of heating.



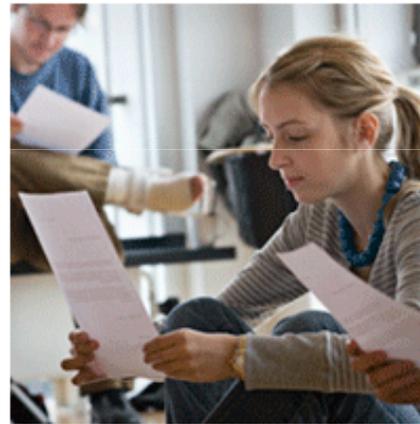
## Laboratories demand a lot of energy

Energy consumption at "wet" faculties with laboratory research is **4-8 times higher** than consumption on "dry" faculties

MWh/årsværk (stud.+ansat) 2006 tal



"Wet"

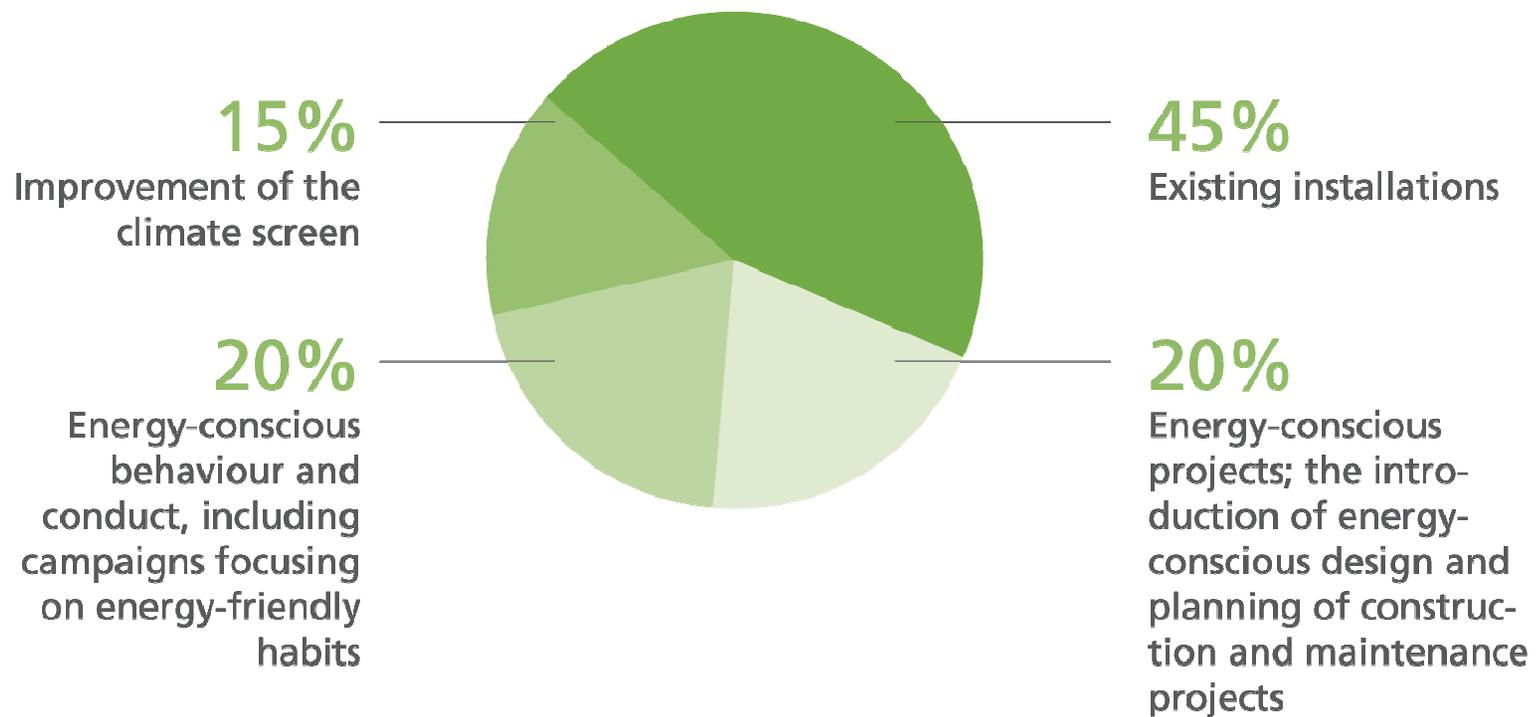


"Dry"

	Sund	Nat	Hum	Teol, Økonomi, Samf
EL	2,12	2,0	0,32	0,37
Varme	4,5	3,16	0,74	1,25



## Where to achieve the savings



By strengthening energy management, specific savings are expected to be distributed as shown



## Energy Action Planning - 3 parallel waves

### Energy Projects 2008, wave 1

- In 2008, 50 energy saving projects were prioritised
- EUR 1.5 million invested
- Annual savings 1,700 tons CO2 from 2009 onwards
- Money saved will be transferred to education and research

Investments are expected to increase in the coming years



## Green Lighthouse

### Pilot project for climate friendly building



| Hellerup Byg | Christensen & Co Arkitekter | Cowi | Kemp & Lauritzen |

GREEN LIGHT HOUSE ●●●●●●●●

Now being built at North Campus  
to be finished 2009, before COP 15

New carbon neutral  
building, 1000 m<sup>2</sup> for:

- student service functions
- study administration
- meeting facilities and
- faculty club





# GRØN GERNING

– KOM MED I BEVÆGELSEN FOR ET BÆREDYGTIGT KU

## Green Action

Join the movement for an energy-efficient university

Green Action is the University of Copenhagen's campaign for energy-efficient behaviour. Make energy-efficient habits part of your daily routine.

You and your colleagues only need to make a few changes to make a difference to the environment and the University's finances.

Campaign, 23 February - 16 March 2009

<http://groengerning.ku.dk/english/>



## Why Green Action?

- The university wants to reduce its energy consumption and CO2 emissions by 20%
- The university spends 160 mill. DKK a year on electricity and heat.  
At least 4-5 % could be saved just by energy-efficient habits, which means 7-8 mill. DKK per year = more money for the Faculty's research and education
- Employees and students must be engaged in sustainability efforts
- This is the possibility to do a small, but important impact every day
- **We need to sweep our own doorstep**



## Main elements in the campaign

Energy efficient habits – concrete advices, recommendations and efforts for:

- Laboratories
- Office areas & spaces for education
- Green IT

Green ambassadors – local coordinators and bearers of efforts, passing on information to department's employees and students. 250 ambassadors volunteered.

Communication and marketing  
- internally and externally, participation, engagement through communicating, competitions, activities

Measuring and visualisation of consumptions



## Stickers

TÆNK GLOBALT – SLUK LOKALT	AT LEVE I EN OPLYST TID KRÆVER FLERE SLUKKEDE KAFFEMASKINER
AT LEVE I EN OPLYST TID KRÆVER FLERE SLUKKEDE SKÆRME	AT LEVE I EN OPLYST TID KRÆVER FLERE SLUKKEDE LYS
AT LEVE I EN OPLYST TID KRÆVER FLERE SLUKKEDE LYS	TÆNK GLOBALT – SLUK LOKALT
AT LEVE I EN OPLYST TID KRÆVER FLERE SLUKKEDE STINKSKABE	TÆNK GLOBALT – SLUK LOKALT
AT LEVE I EN OPLYST TID KRÆVER FLERE SLUKKEDE PUNKTSUG	TÆNK GLOBALT – SLUK LOKALT
ENERGIRIGTIGE VANER STARTER HER: <b>SLUK</b> 	ENERGIRIGTIGE VANER STARTER HER: <b>SLUK</b> 

## Posters

**NED FOR VARMEN,  
NÅR DU LUFTER UD  
SÅ FÅR VI FLERE  
PENGE I OVERSKUD**

Kom med i bevægelsen  
for et energirigtigt KU

Gran Gerning

**LUK ET  
STINKSKAB  
– FÅ RÅD TIL  
EN PH.D.-FLAB**

Kom med i bevægelsen  
for et energirigtigt KU

Gran Gerning

**SLUK NÅR  
DU GÅR  
SÅ KU FLERE  
PENGE FÅR**

TIL FØRSKNINGEN

Kom med i bevægelsen  
rigtigt KU

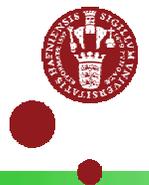


## Technical devices offered in the campaign

- Energy saving plug socket for PC and other equipment.
- Automatic switches for printers/copiers, coffee machines, water coolers etc.
- "Close the fume cupboard" sticker (LARGE potential!!!)
- On line manual for energy controlling the pc
- Offer to have an energy expert visiting the department

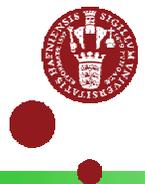
All devices and offers can be ordered for free by green ambassadors via

<http://groengerning.ku.dk>



## Results from the campaign 23 Feb. – 16 March 2009

- The overall drop in energy consumption from first to third campaign week corresponds to an annual saving of almost 2,4 mill. DKK or 700 tons CO<sub>2</sub>.
- Consumption of heating dropped 11 %
- Consumption of electricity dropped 1 %
- There is a potential for more, 7-8 mill. DKK per year!!!
- Follow ups are now to be planned





Enjoy your stay in Copenhagen!

**GREEN** *Campus*

