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# Welcome





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## Ivan Lyngby Michelsen

- Inventor of the Active House principles, now an acknowledged Danish Building Standard
- Updating old houses making them low energy/low cost/carbon neutral
- Running workshops about Sustainability – latest at the Thames Gateway and the Chartered Institute of Housing (CIH)
- Giving lectures at universities in Denmark



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# This evening's presentation

- Active House
- Examples from Denmark and comparisons with the UK
  - Short movie from area in Denmark where 95% of energy is supplied via renewable energy
  - Waste management
  - Solar energy
  - Metering
  - Energy payment system
  - Saving potentials for the UK
  - Berkhamsted case study – renovating Victorian houses
  - Q&As



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# Active House

- Developing new Sustainable Technologies for renovation and new build
- Inventing design ideas and ways of combining new products
- Ensuring new products work effectively together



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## Active House

- Renovating and re-designing houses ensuring at least 25% saving on energy bill – in some cases ‘Factor 10’
- Organising trips to Denmark visiting companies working with Sustainability



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# Examples from Denmark and comparisons with the UK





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## Movie

- From area in Denmark where 95% of energy is supplied via renewable energy





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## Waste Management – example of recent invention from Denmark...

- Use of toilet waste in Copenhagen – waste management at it's best!
  - Published this week, work beginning next year to be completed in 2011
  - Waste to be centrifuged and burned in condensing gas burner
  - Creating year round heating for 3-4,000 house holds



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## Solar energy

- Every day the sun produces 10,000 times the amount of all energy used on Earth!
- Solar energy represents a huge potential to save energy



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## Solar Energy – example of recent invention from Denmark...

- Sunvac Air Solar Heating ventilation system
  - Solar Pipes mounted on wall or roof generating heat
  - No running costs
  - No need for servicing
  - Fits buildings from 90-750 square meters
  - A one-off payment gives you FREE heating
  - Price per house begins at £1,500



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## Other products – on display here today

- Double glass windows with Argon gas
- Triple glass window with Krypton gas
  - 0 bridging
  - 0 draught
  - 0 heat loss
- Non pollutive Insulation made of paper and wood waste
- Solar panel
- Water sprinklers



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## Metering

- When water metering system was put in place in Denmark consumption dropped 25% in the first year
- Due to use of more and more efficient products, consumption of energy in Denmark drops every year



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## Energy payment systems – Denmark and the UK

- In the UK discount is given for higher usage
- In Denmark 10% penalty is given for over average usage





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## Where we are in Denmark

- We have built the first Active Houses with surplus of energy!
- All houses have thermo windows
- All rooms are heated 24/7 and all radiators have thermostats
- Only 200,000 houses left without cavity insulation
  - A £2,000 investment insulating each remaining house will save each house hold £4-500 yearly
  - Danish companies would receive orders for over £400 mil AND save the 200,000 house holds £100 mil every year...AND create more jobs...



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## Saving potentials for The UK...

- There are 26 mil houses in the UK
- About 95% need better windows and insulation
- An average investment of £5,000 per house hold would save each house hold a minimum of £500 per year
- British companies would receive orders for over £100 billion enabling them to create jobs
- The country would save £10 billion a year...every year...
- The money could be given to the communities, the NHS, the schools...





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# Berkhamsted case study – renovating Victorian houses

## **Windows – Secondary glazing**

- Instant saving on energy bill around 25%
- No more draught
- Reduce noise from busy road
- No need for heavy curtains – let in more light
- Secondary glazing better than new windows
  - Preserve good quality wood and save the environment
  - Cheaper and quicker
  - Price per window approximately £500



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# Berkhamsted case study – renovating Victorian houses

## Floors

- Under floor insulation
  - Instant saving on energy bill around 25%
  - Quick and easy to do
  - Cheap and very efficient
  - No more cold feet
  - Price per room approximately £500



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# Berkhamsted case study – renovating Victorian houses

## Walls

- Plasterboards with Styrophor
  - Ensures walls without bridging
  - Price per room depending on ceiling height, wall type, floor type etc.



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# Berkhamsted case study – renovating Victorian houses

## **Boiler Setting**

- Ensuring the boiler is set correctly could represent substantial savings on energy bill
  - Right temperature
  - Pump flow correct
  - Insulate pipes
  - Price per house approximately £100



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# Berkhamsted case study – renovating Victorian houses

## Water

- Installation of low energy sprinklers
  - Quick and easy
  - £10 per tab
  - Will lower water consumption by 50-75%
  - Massive saving on the environment



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# Berkhamsted case study – renovating Victorian houses

## **Electricity**

- Avoid Standby on electric items such as computers, Hoovers, TVs, Dvds etc. will save you approximately 10% on your energy bill
- Use low energy light bulbs or LED
- Correct boiler setting could save you electricity as well



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Thank you for listening...

**Q&As**

