

HOW USERS AND ENERGY EFFICIENT
BUILDINGS/TECHNOLOGIES INTERACT AND
WHAT WE CAN LEARN FROM THIS
IN A DANISH CONTEXT

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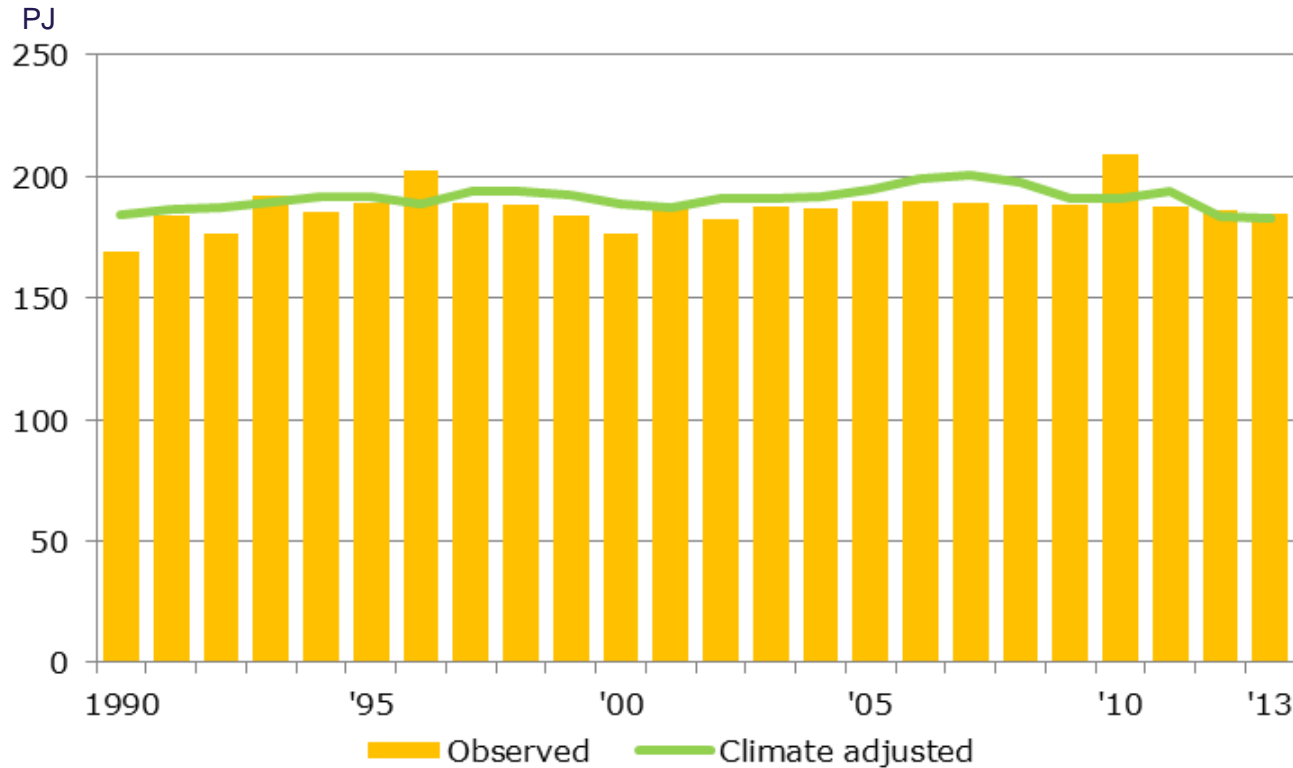
What I want to say....

- Energy efficiency is not enough – user practices matter as much
- Energy efficient technologies and buildings influence practices – maybe the wrong direction
- How to understand user practices?
- What to learn for energy policy?

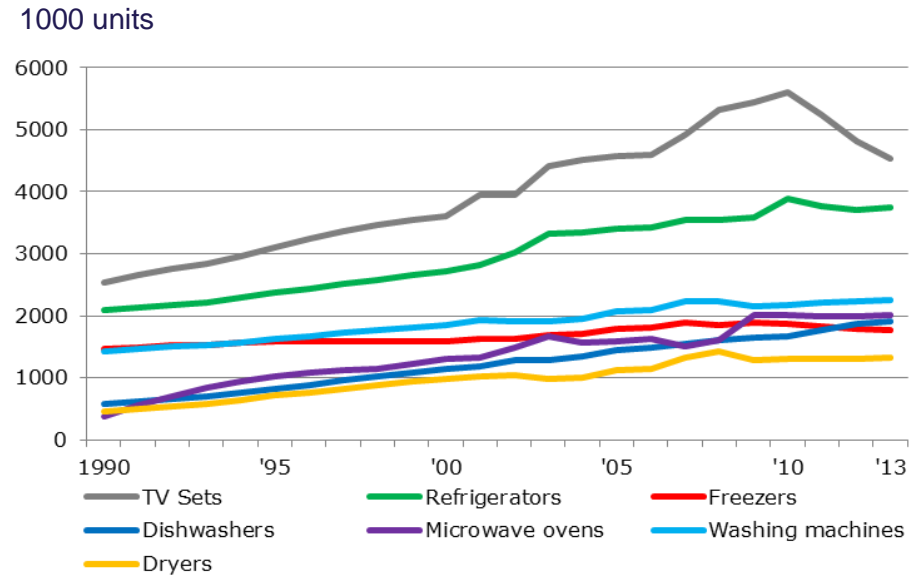
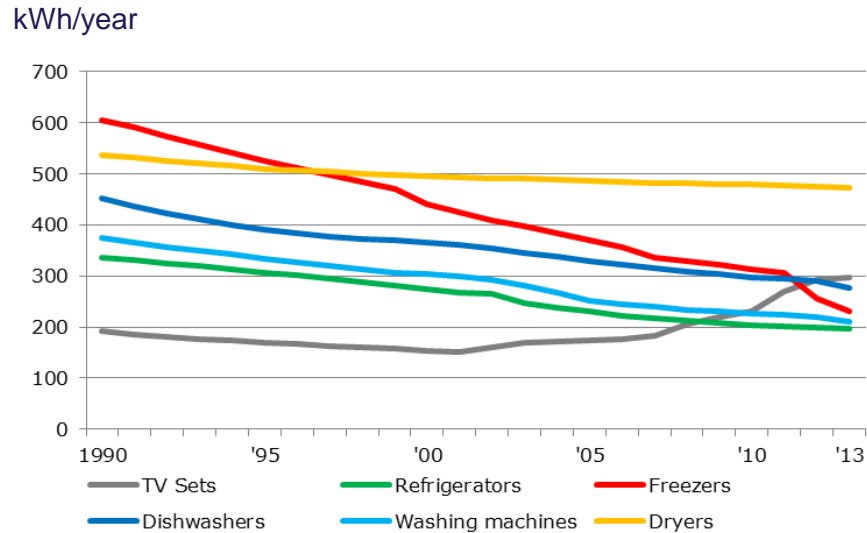


Energy consumption in households....

...not much is happening



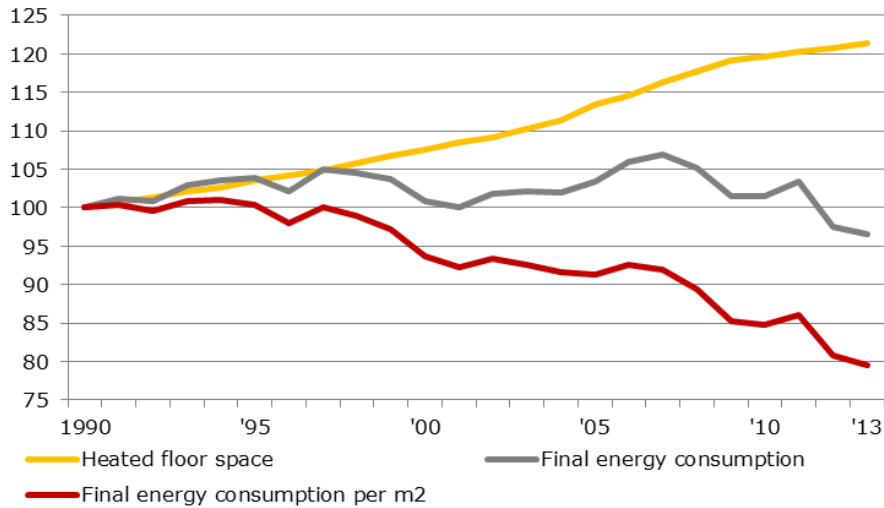
Energy efficiency is not enough when the number of appliances continues to grow...



Energy statistics, Danish Energy Agency, 2013

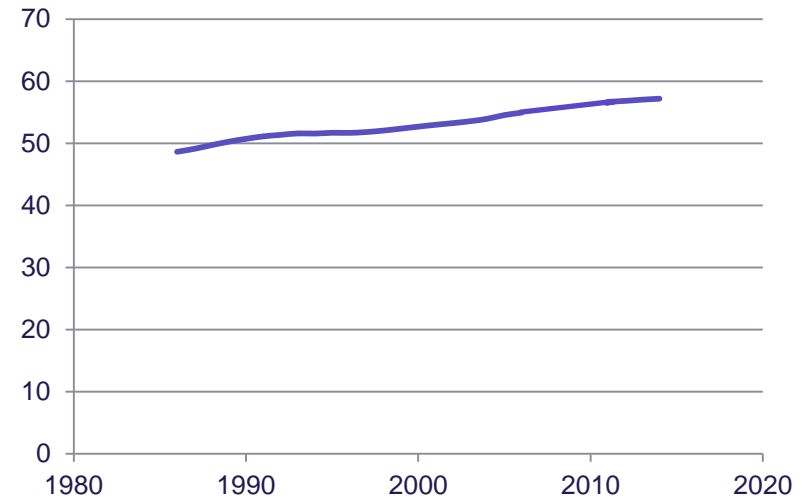
And still more square meters are heated...

Index 1990=100



Energy statistics, Danish Energy Agency, 2013

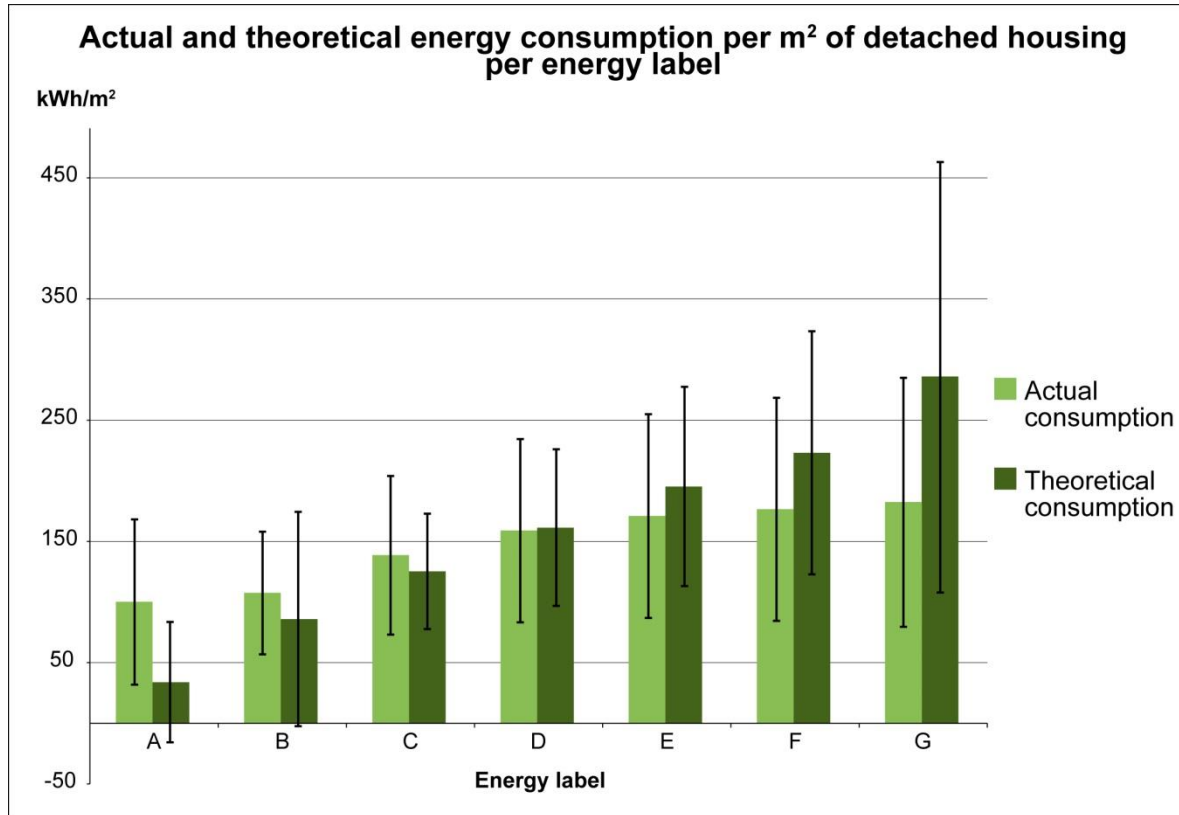
Squaremeter per person



Statistics Denmark, 2013



Efficient homes versus efficient practices....



Based on 230.200 detached Danish houses with an energy label.

Please note: this figure is preliminary as some data need to be checked. Please do not cite or reuse without permission by the author.



Heat pumps – an efficient technology?

Change from direct electric heating to
Air-to-air heat pumps:

- In ordinary homes (n=138) 20% of potential savings were used for improved comfort
- In summer residences (n=42) on average *no* savings – but much improved comfort
- New technologies go together with changes in practices – technology cannot be energy saving in it self



(Gram-Hanssen, Christensen, Petersen, 2012)



How to understand user practices? Practice theories

- *Not a finished and commonly agreed upon approach...*
- Practices are collective – practitioners are carriers of a practice
- Practice theory mediates between a structure and an actor perspective
- “Sayings” and “doings” are held together by certain elements



Understanding and maybe changing a practice

Know-how,
embodied
habits

Technology and
infrastructure

Laundering
practice

Engagements

Knowledge
and rules



Energy consumption is *not* a practice

- ...but a precondition and a bi-product for most of our everyday practices
- Cooking, computer gaming, laundering etc. are practices
- These practices are all structured by technologies though also by routines, engagement, rules, knowledge...



Policy *can* change practices

- **Knowledge and rules:** how can building regulations and energy labels include a practice perspective?
- **Routines** can be changes: make it easy to do the right - nudging
- **Engagements:** economic policy, campaigns, local citizens projects... not promote buying efficiency but changing practices in a broader sense
- **Technology R&D:** not only supporting efficient technologies – but technology development including user-approaches



THANKS FOR YOUR ATTENTION

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