

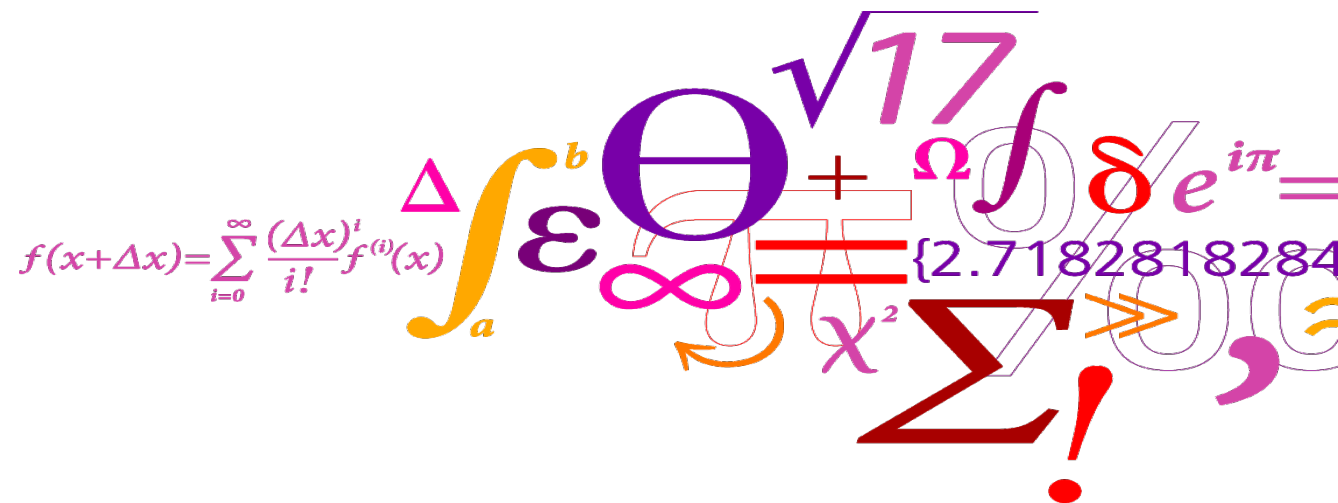
# Climate solutions in a society perspective

- no more waiting, action is required!

Professor Poul Erik Morthorst  
DTU  
Member of the Climate Council

DTU Management Engineering  
Department of Management Engineering

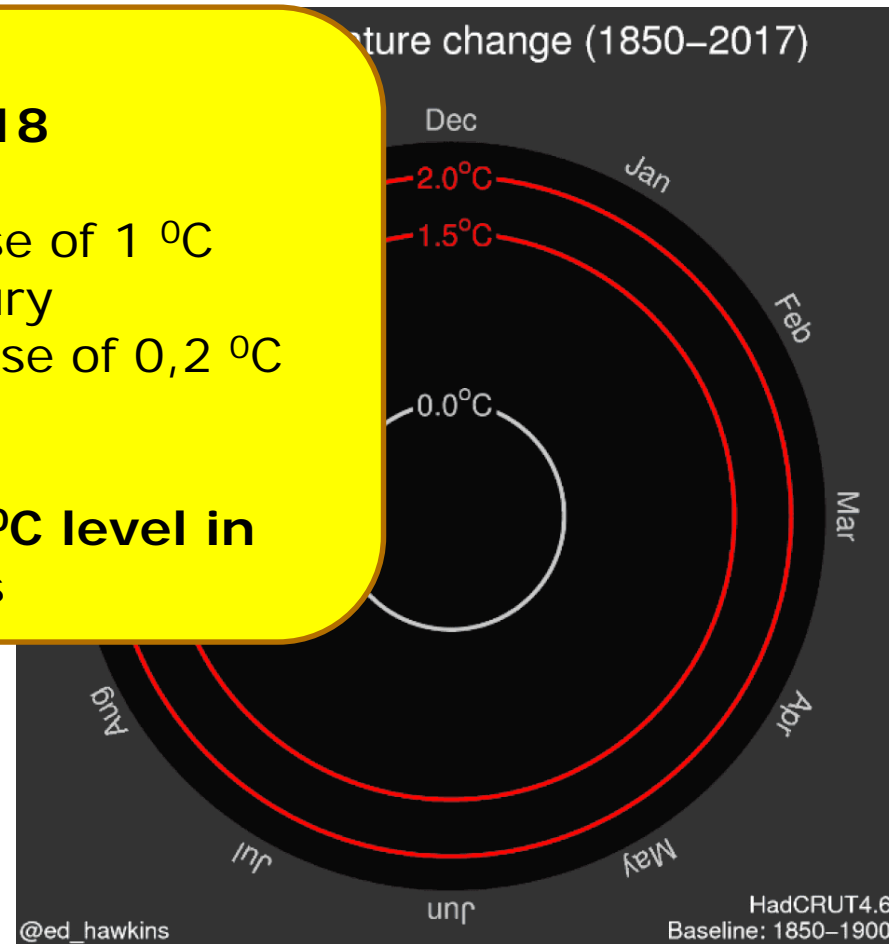
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# No more waiting, action is required!

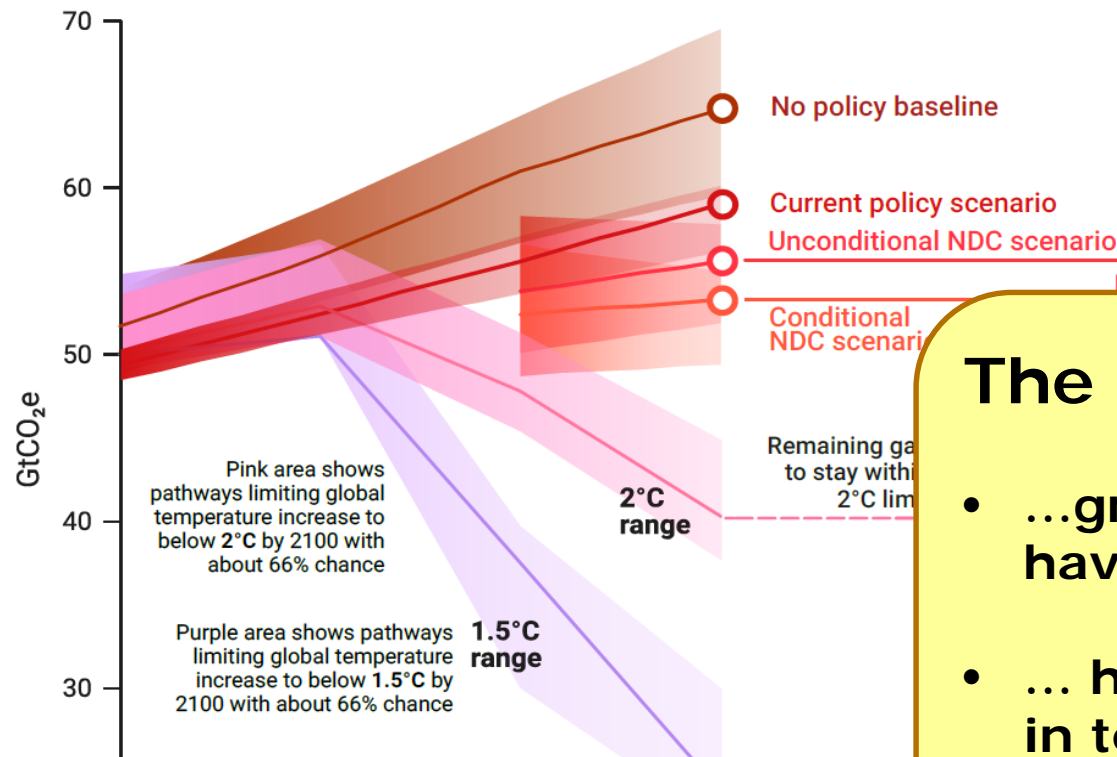
## IPCC Report end 2018

- Temperature increase of 1 °C within the last century
- At present an increase of 0,2 °C per decade
- **We reach the 1,5 °C level in about 12-34 years**



# The Paris agreement sets the framework for climate policy

## Emission gap



### The lost decade

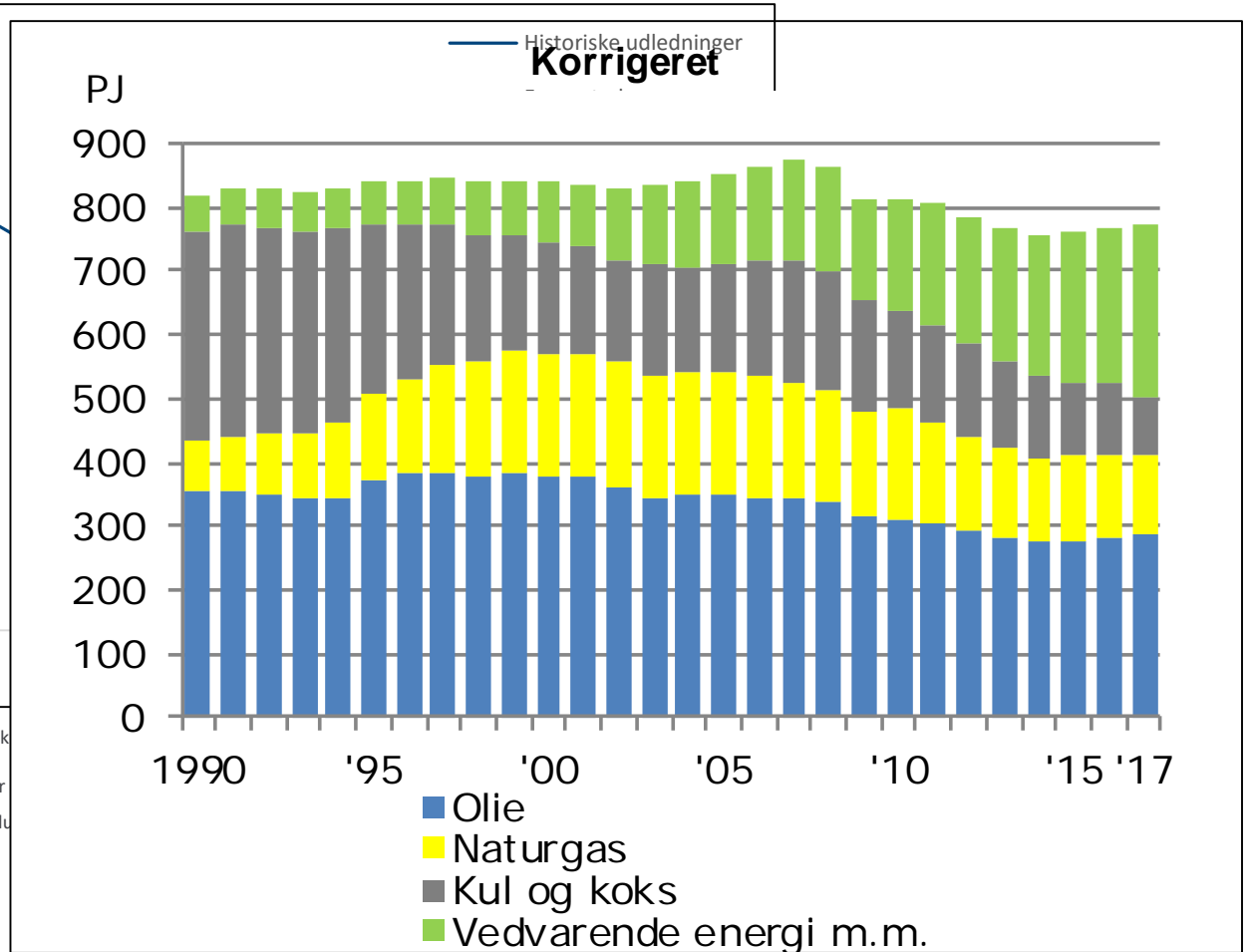
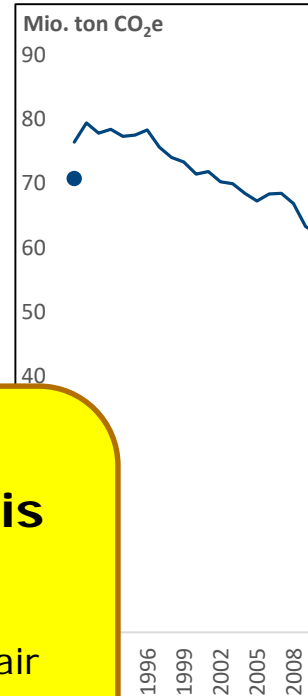
- ...greenhouse gas emissions have kept increasing
- ... however, we are better off in terms of mitigation possibilities

### The Emissions Gap Report 2018

- There will be a significant emissions gap in 2030
- Commitments cover less than 1/3 of needed reductions to achieve the 1,5 °C target



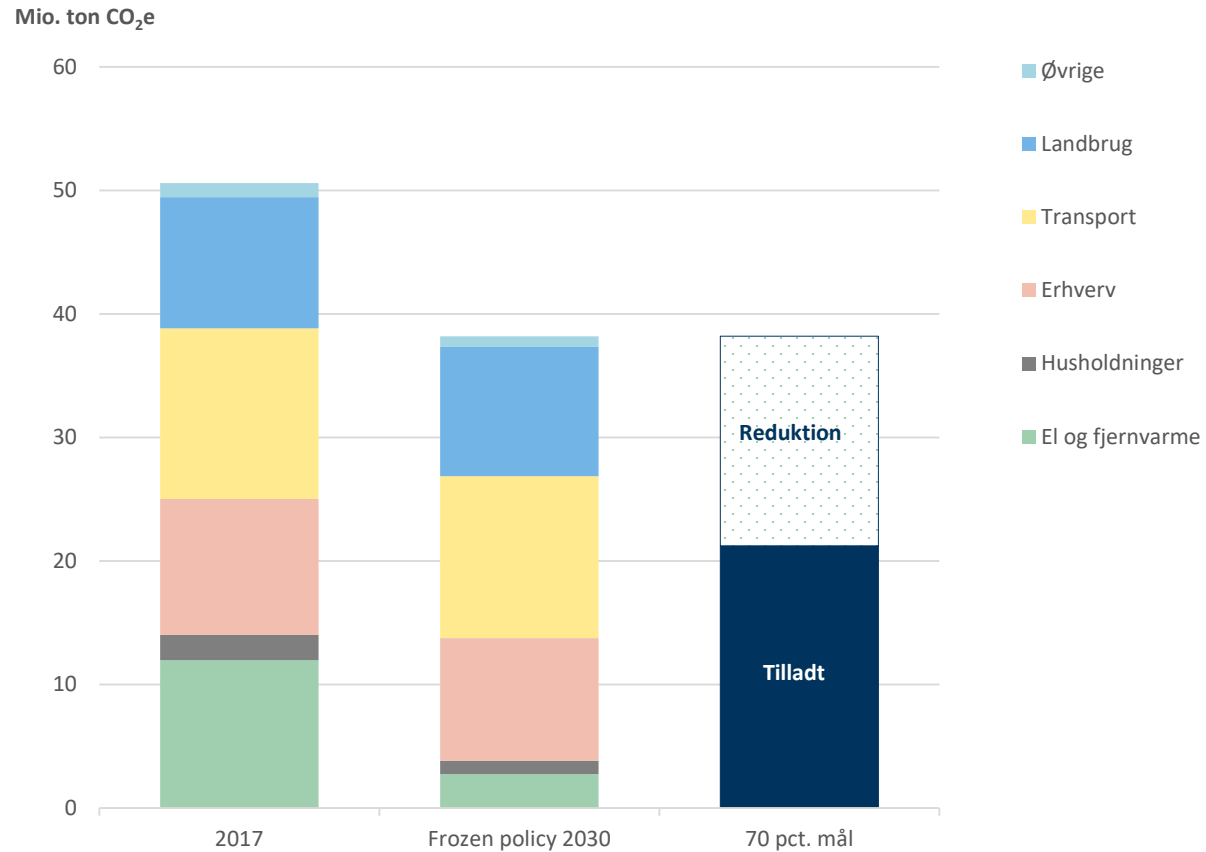
# Significant GHG reductions in Denmark - and a new 70% goal by 2030!



**70% goal fulfills the Paris agreement**

- Denmark is supposed to take a "fair share"
- The EU does not live up to the Paris agreement

# GHG emissions assumed a frozen policy until 2030



Kilde: Energistyrelsen, Basisfremskrivning 2019

Anm.: Den historiske udledning er klimakorrigeret, mens referencen i 1990 er sat til FN's basisår, der er noget lavere end det korrigerede tal. Derfor starter reduktionen i negativ.

# How does Denmark's energy system look in 2050?

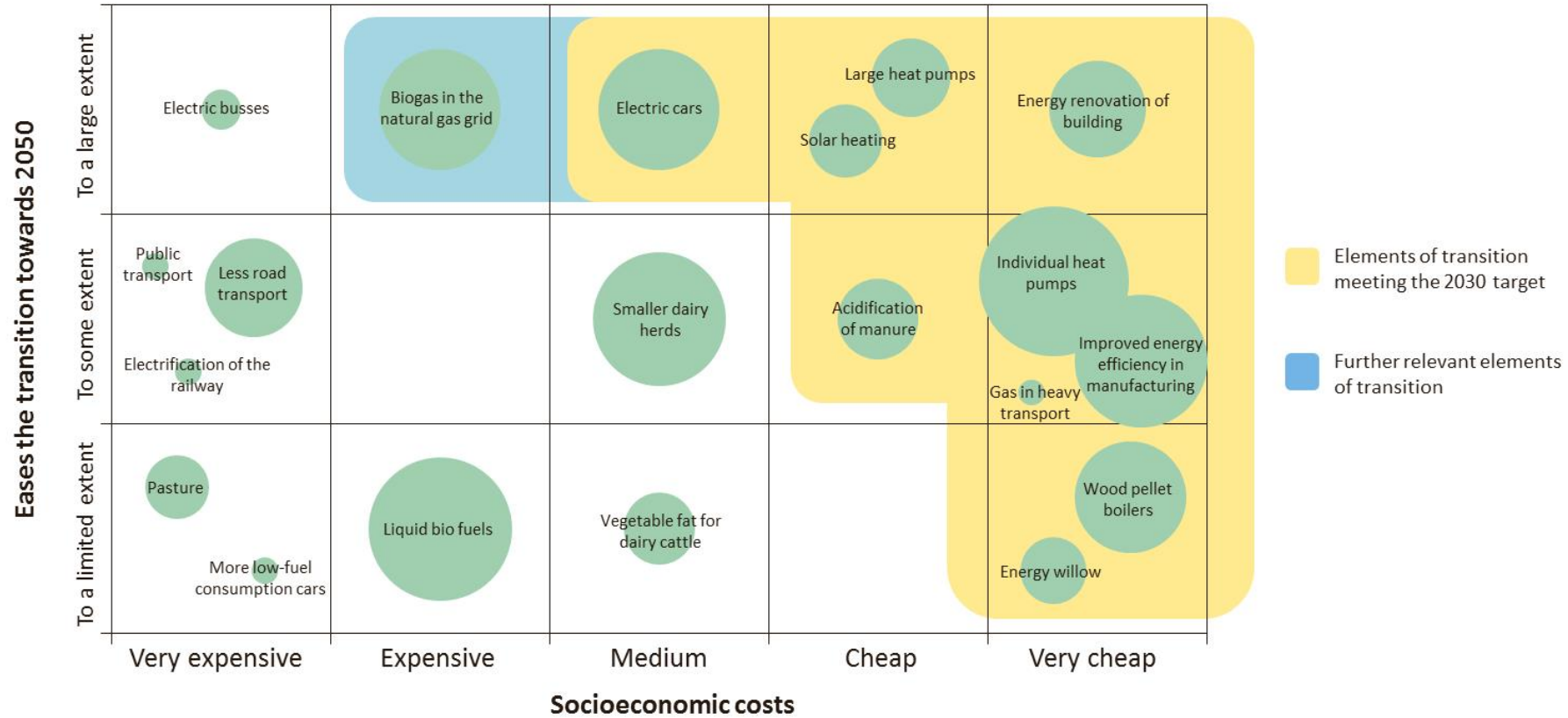
- **An energy system dominated by electricity**
  - ...the development
  - ...as
  - ...system
  - ...delivering
  - ...s
- **The**
  - ...to tie it
  - ...all to
- **of w**
  - Biogas, Biomass, Power-to-X, Smart Energy, Storage.....

## Long-term goal

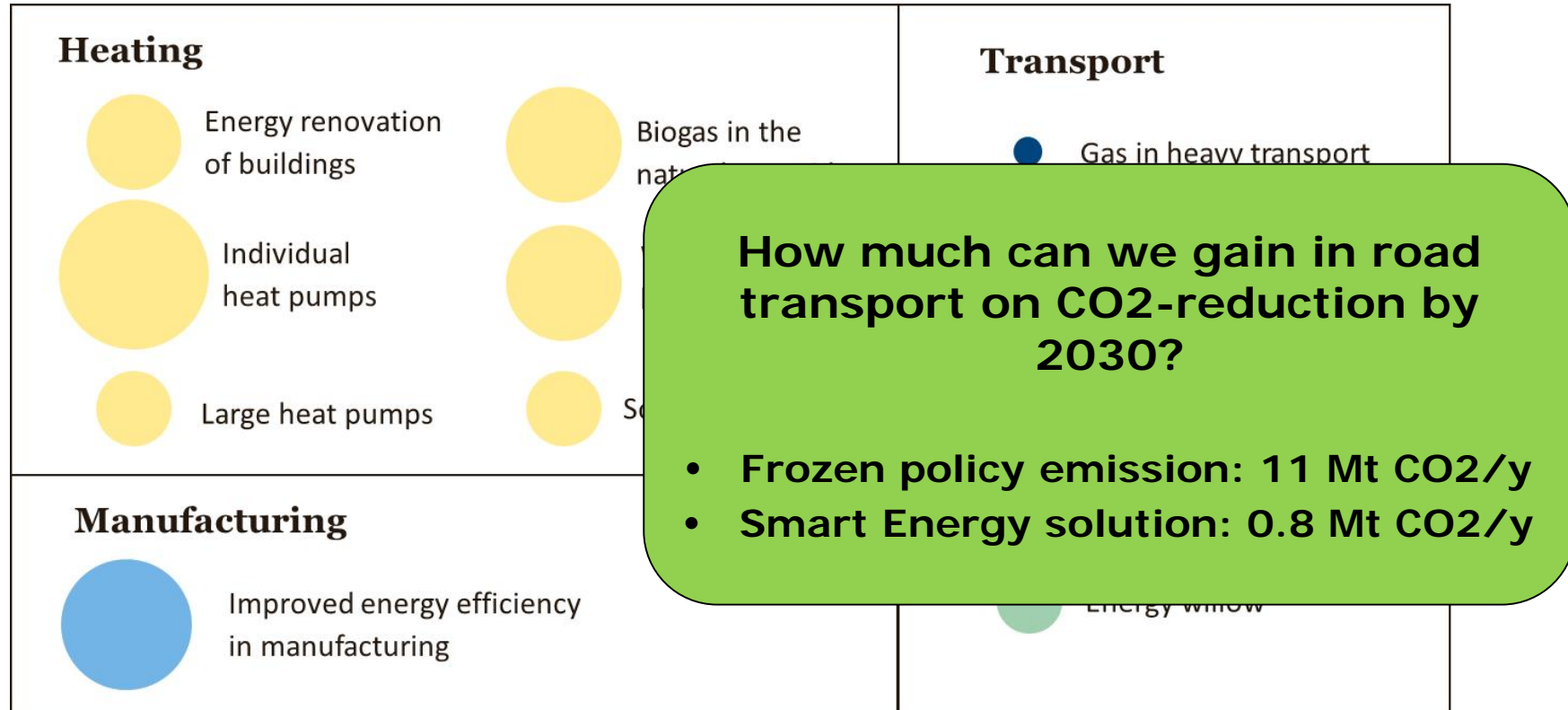
A Carbon neutral energy system by 2050

- Net zero emissions

# We have investigated 20 so-called elements of transition

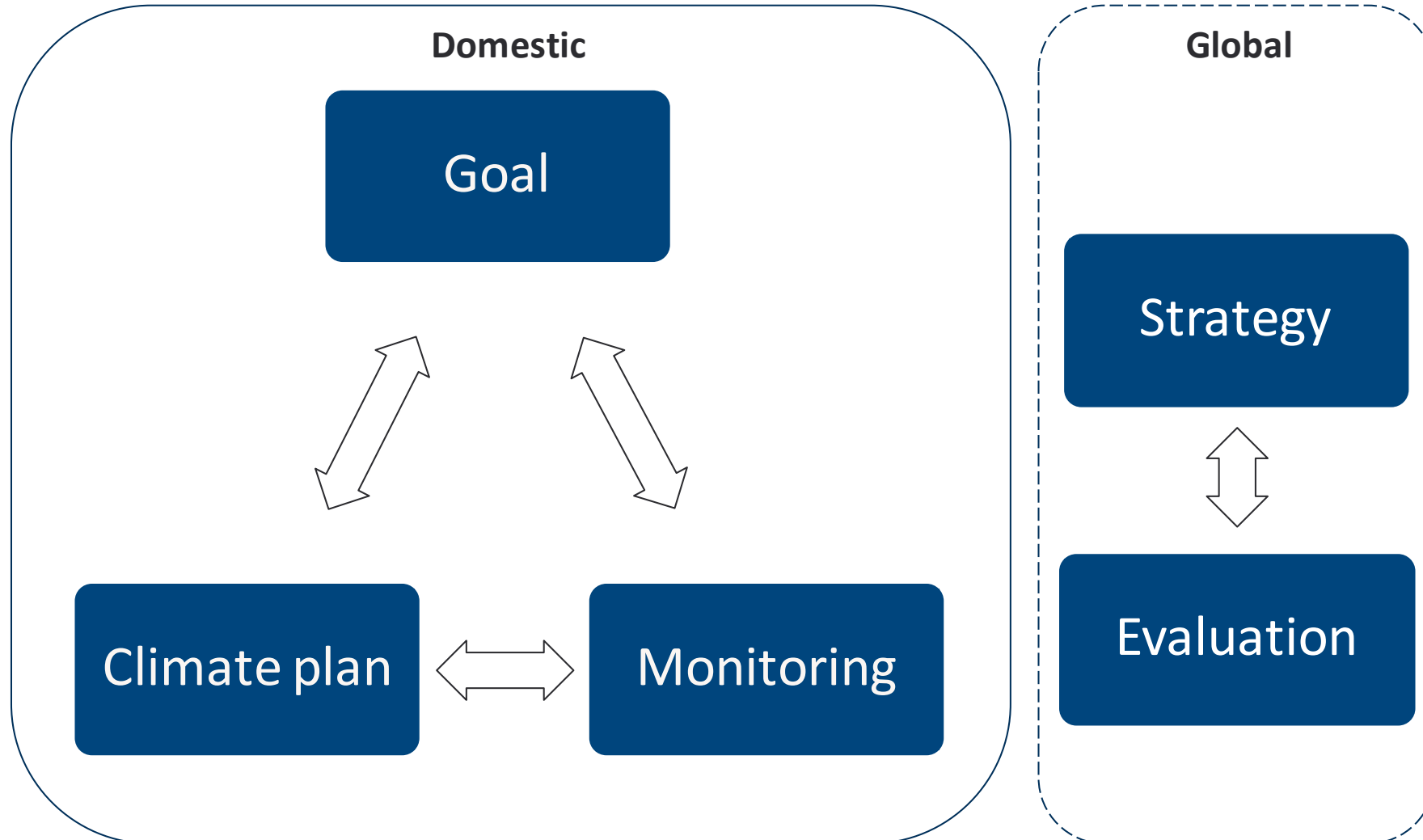


# The Council recommends 11 elements of transition



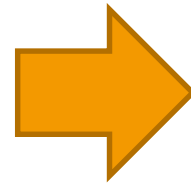


# Proposal for a new Climate Law



# ETS is not an argument for not supporting renewable energy technologies

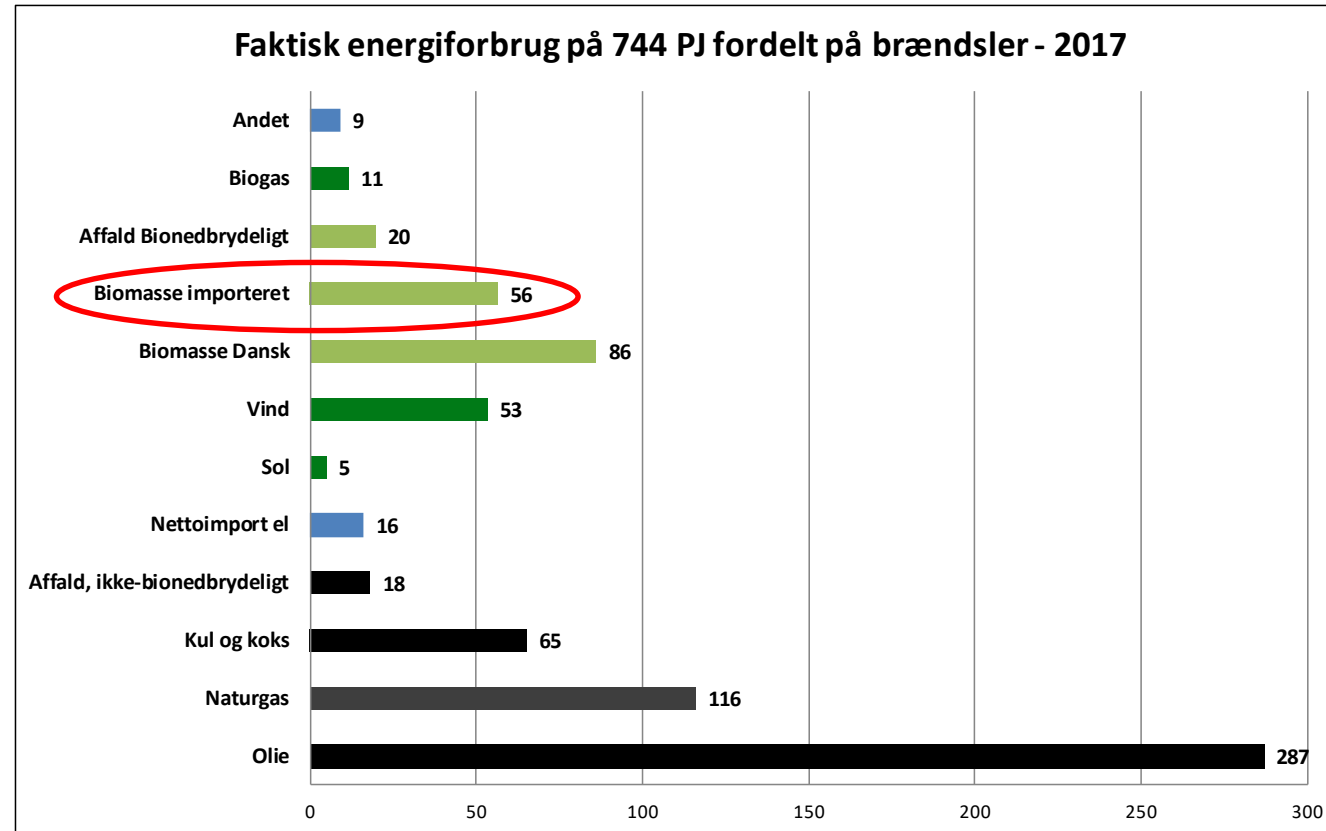
When Denmark expands the energy production from renewable technologies it results in a reduced demand for quotas in ETS and with the present mechanism some of these are cancelled



Thus it contributes to a reduction of total CO<sub>2</sub> emissions in EU in the short term, however not to the same extent in the long term

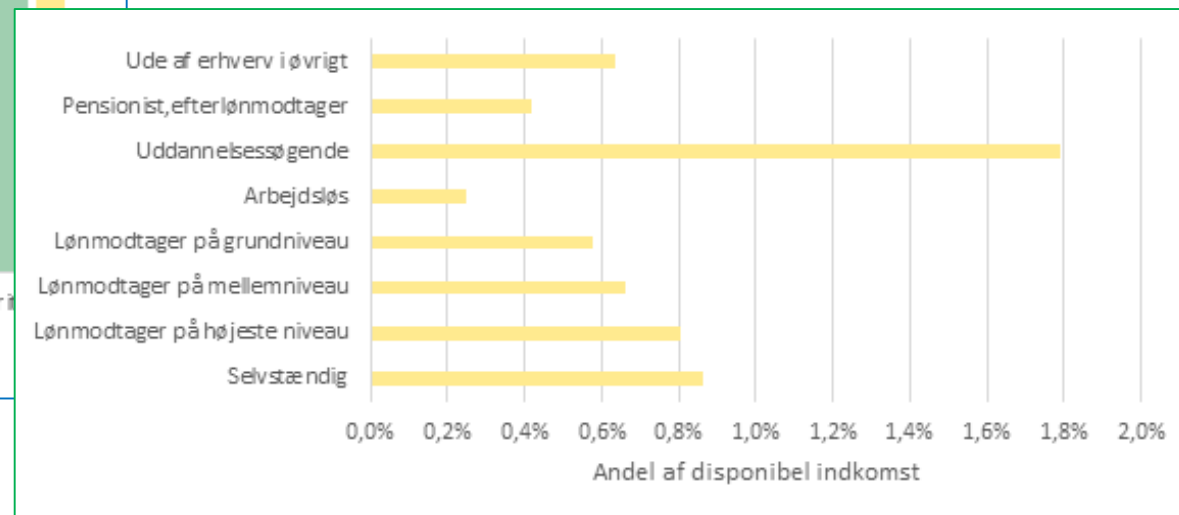
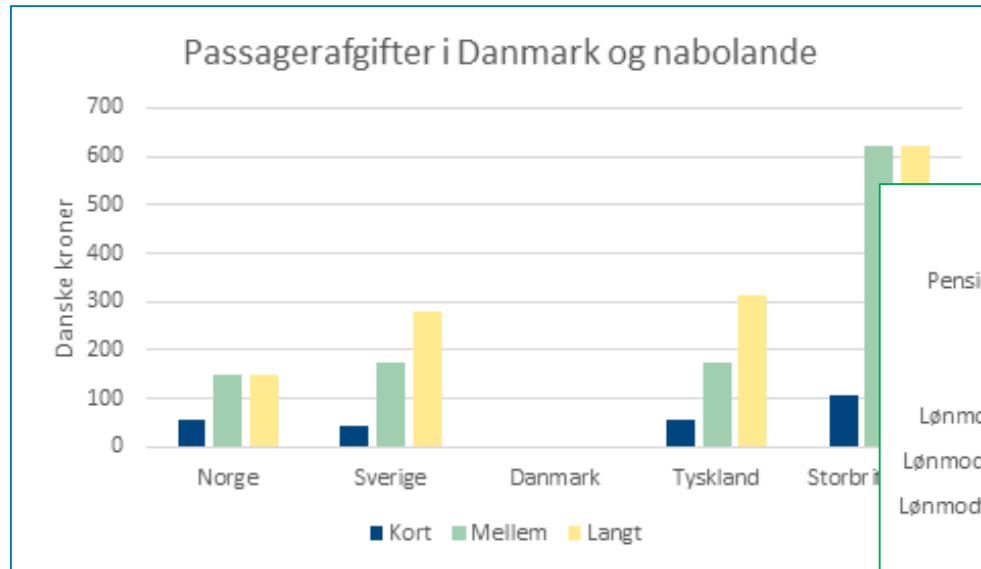
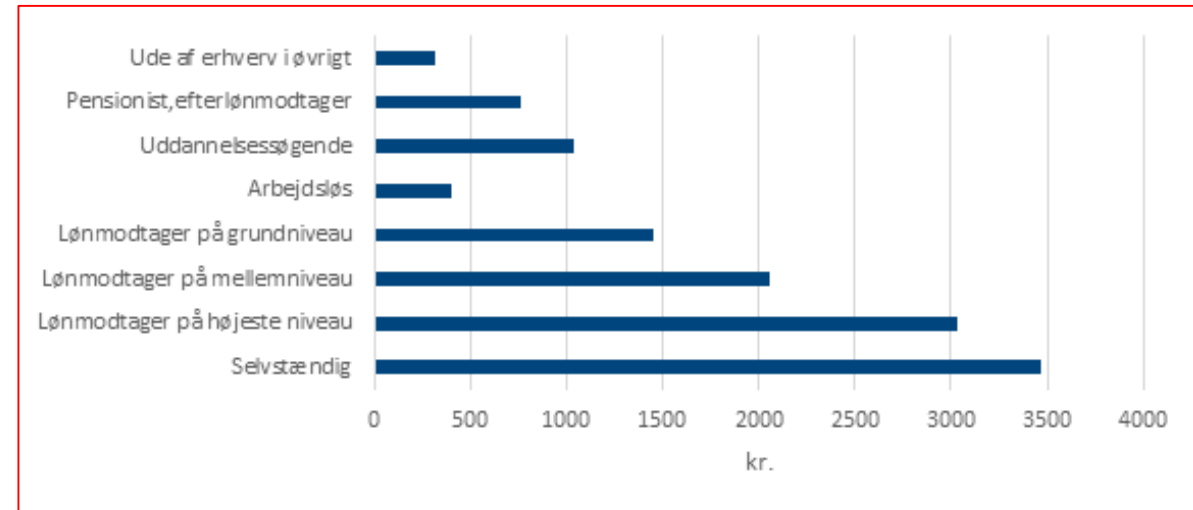
- **A policy for cancellation of quotas does not lead to a reduction of CO<sub>2</sub> emissions in the short term**

# Climate Neutral biomass?

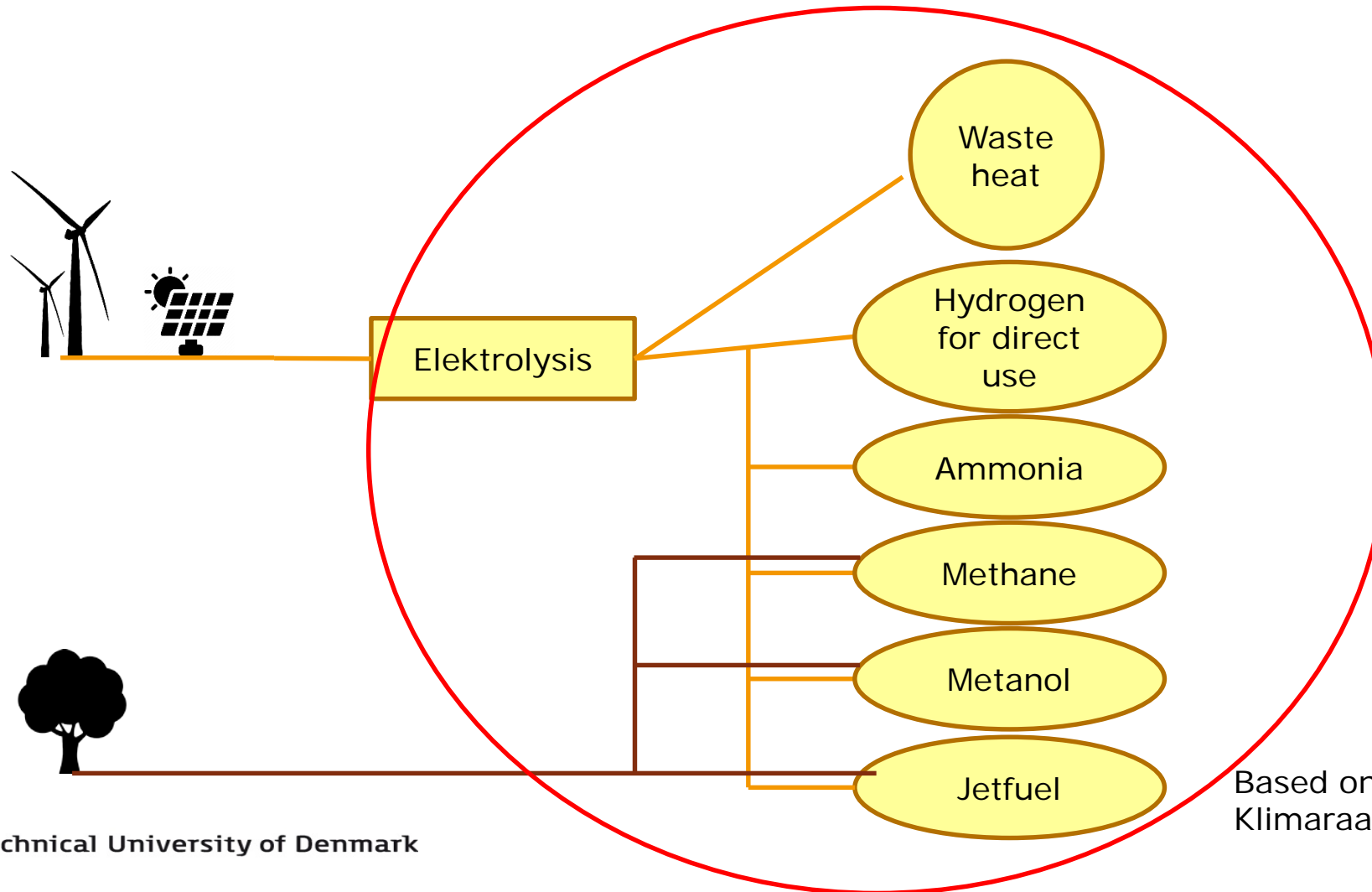


# Tax on air travels

- 18 mill. passengers depart from Copenhagen airport annually

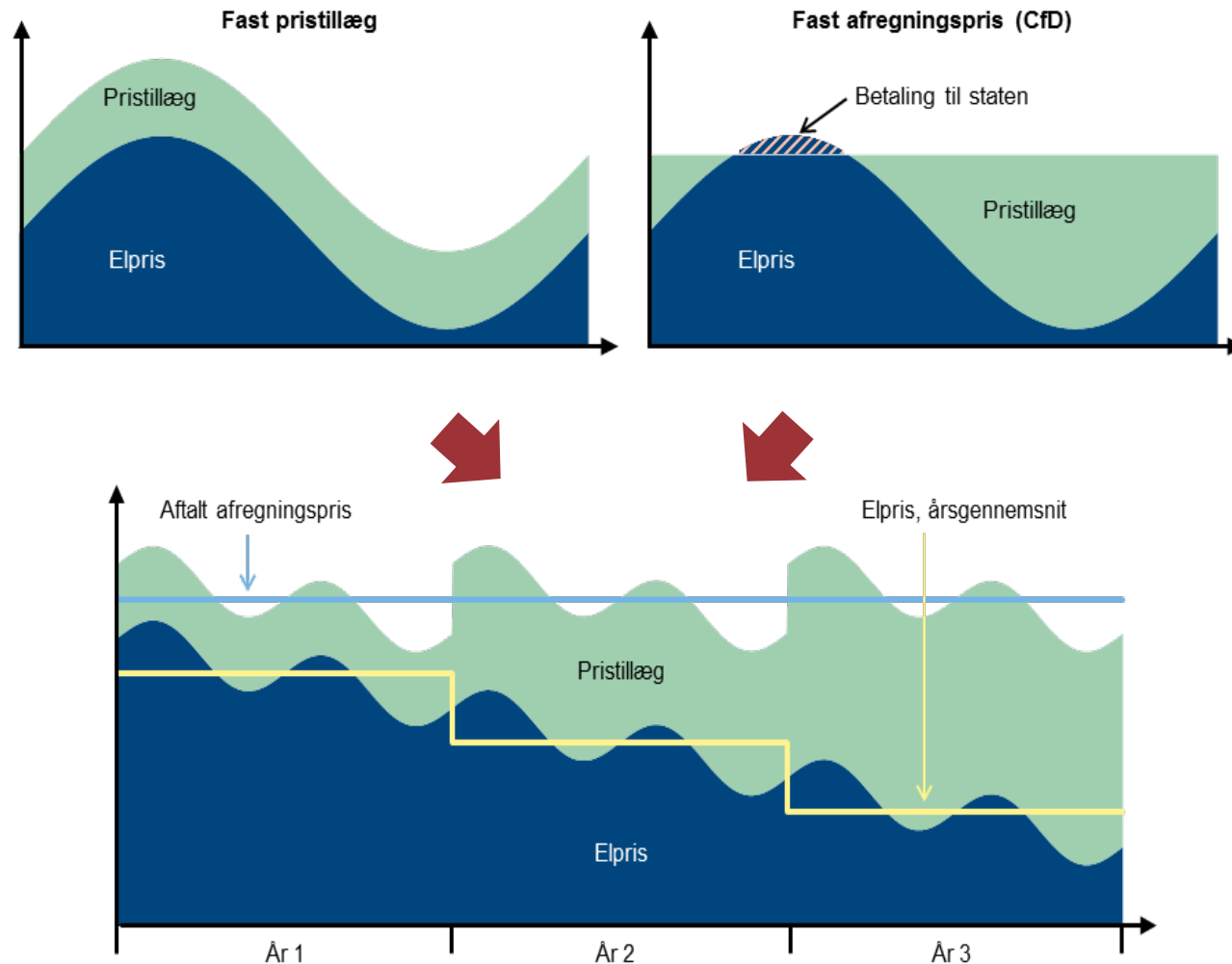


# Power-to-X



Based on Klimaraadet

# Support to renewables following an annual CfD



## Illustration af årsafregnet contract-for-difference

Figuren illustrerer et eksempel, hvor elprisen falder over en treårig periode, men med udsving op og ned inden for året. Der er tale om en illustration, og figuren viser ikke Klimarådets forventninger til elprisudviklingen.

# Thank you for your attention

Professor Poul Erik Morthorst  
Systems Analyses Division  
DTU Management Engineering  
e-mail: [pemo@dtu.dk](mailto:pemo@dtu.dk)