The Danish Wood Pellet Survey

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Background

- After a "moderate" increase in the consumption of wood pellets from 1990 to late 90'ies the increase became explosive
- Drivers: "The green wave" and a tax free fuel
- Revision of the potential Danish consumption:

  Constant domestic production of wood pellets but fast increase in imports (big players)
- The transformation sector already well covered by DEA's annual survey "Electricity and heat production" (production and fuel data etc).
- Necessary to replace estimates of final consumptions by a complete survey

Preparation of the Survey

- Biannual survey (2002 to 2012)
- The surveys and reports are prepared by FORCE Technology for DEA (expert assistance needed)
- Planning of the survey
  - Voluntary survey
  - Definition of product
  - Calorific value
  - Identification of respondents (in 2012:214)
  - Design of the questionnaire
  - Dissemination and receipt of questionnaires
  - Consistency check
  - Reminder letter
  - Response: 5 out of business, response rate 46,5%
  - Preparing of statistics
  - Reports on DEA's homepage in Danish and English
  - Reports to respondents

Definition of Wood Pellets

Pellets made from shavings, sawdust etc. from production of wooden products. Size 8-10 mm diameter.
The wood fibres are uncontaminated; a national Danish regulation determines the distinction between uncontaminated wood fuels and waste.

Pellets made from waste e.g. MSW in not included in the definition. However, as it is difficult to determine the origin of a specific supply of pellets, it is possible that some data-sources might include smaller fractions of pellets made from other materials than uncontaminated wood fibres (straw, MSW etc.) in figures and estimates.

Calorific Value – Heating Value

The lower heating value (LHV) of wood pellets is based on an average LHV for wood of 19.0 GJ/ton dry matter. This figure is based on a number of laboratory determinations of heating values for uncontaminated wood samples.

The water content of the pellets is determined in different studies to be between 6 % and 8 %.

Thus a heating value of 17.5 GJ/tons based on 7 % water content has been calculated using the formula:
19.0 • 0.93 – 2.45 • 0.07 = 17.5 GJ/ton

This figure 17.5 GJ/ton wood pellets covers the markets average in terms of water content and dry matter heating value. The figure has been used continuously in the energy statistics since 1986.

The Wood Pellet Questionnaire 2012

- **Stocks of wood pellets**
  - Opening stocks ..... tons
  - Closing stocks ..... tons

- **Supply of wood pellets**
  - Own production ..... tons
  - Domestic purchase ..... tons
  - Imports (+ by country) ..... tons

- **Sales of wood pellets**
  - Exports (+ by country) ..... tons
  - Sales to other inland sales company ..... tons
  - Sales to final consumer
    - Electricity and heat plants ..... tons
    - Industry ..... tons
    - Public sector ..... tons
    - Households ..... tons

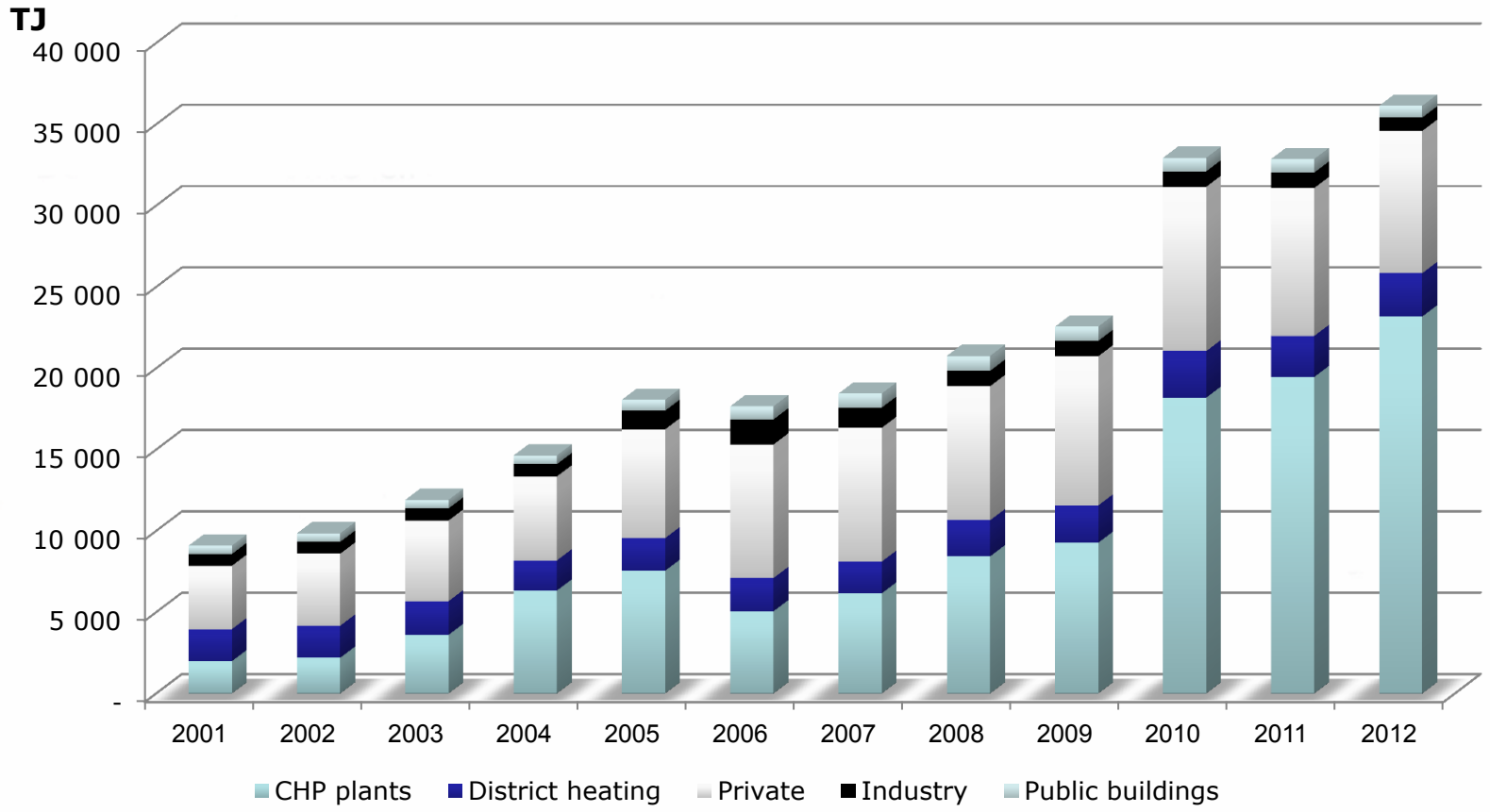
- **Own consumption of wood pellets** ..... tons

Strong increase in imports of wood pellets

Wood Pellets 2002-2012

Units : tonnes	2002	2004	2006	2008	2010	2012
Domestic production	173 073	187 458	137 080	134 280	137 622	99 930
Imports	200 871	470 588	841 132	925 401	1568 952	1898 143
Exports	0	795	17 948	41 149	63 386	75 855
Stock changes	27 347	73 883	-64 468	40 987	75 788	-8 170
Total consumption	401 291	731 134	895 796	1059 519	1718 976	1914 048

Wood Pellet Consumption in Denmark



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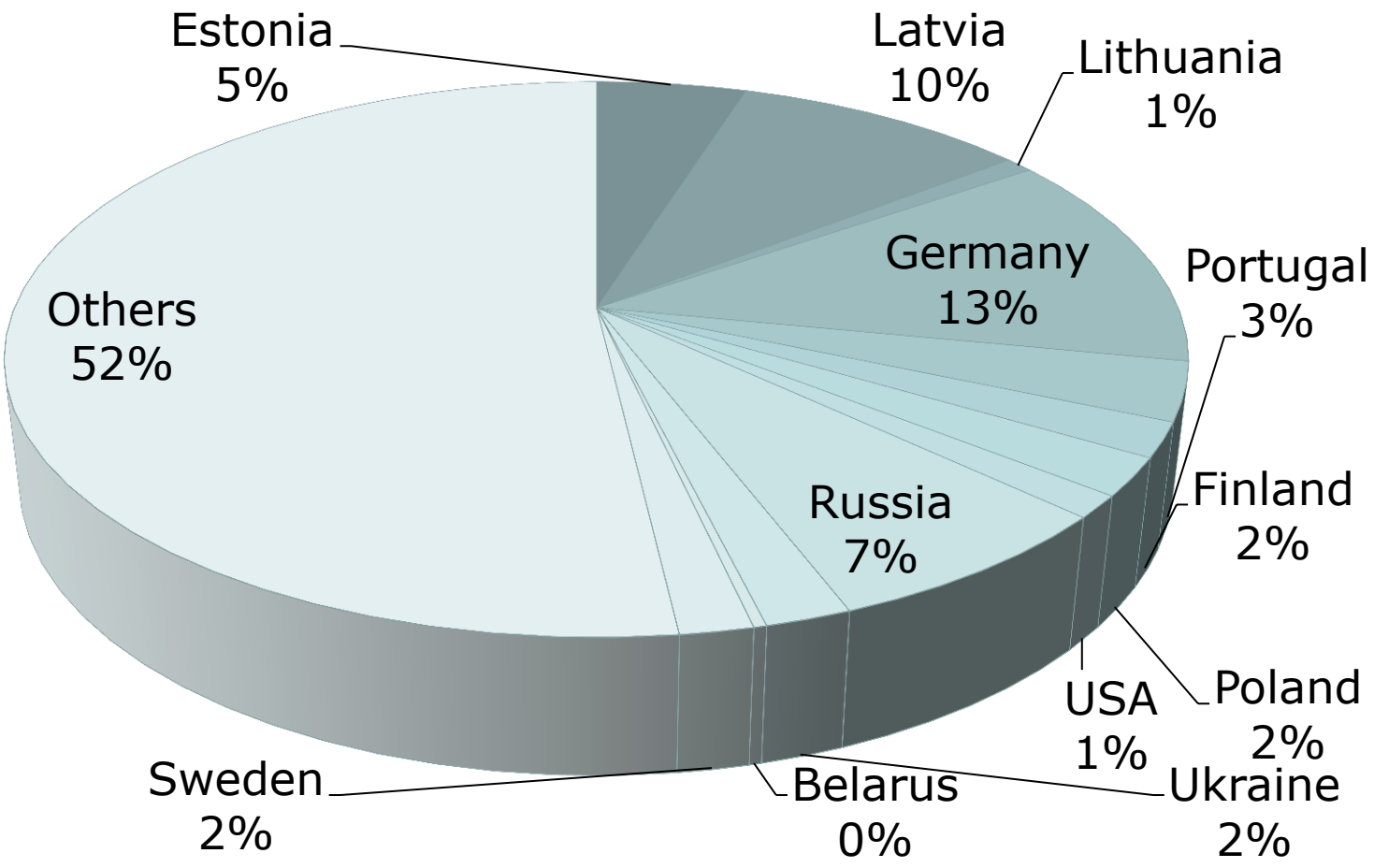
Imports by Country in 2012



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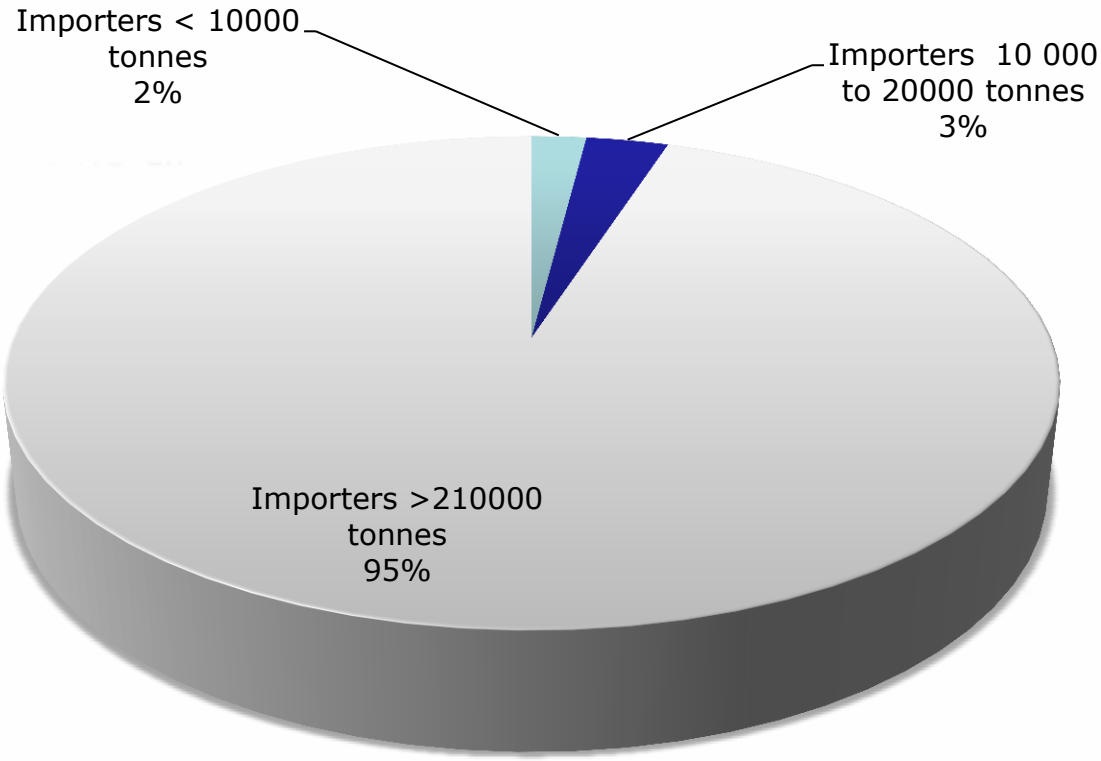
Big Importers Dominate



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Report 2012 on Wood Pellets

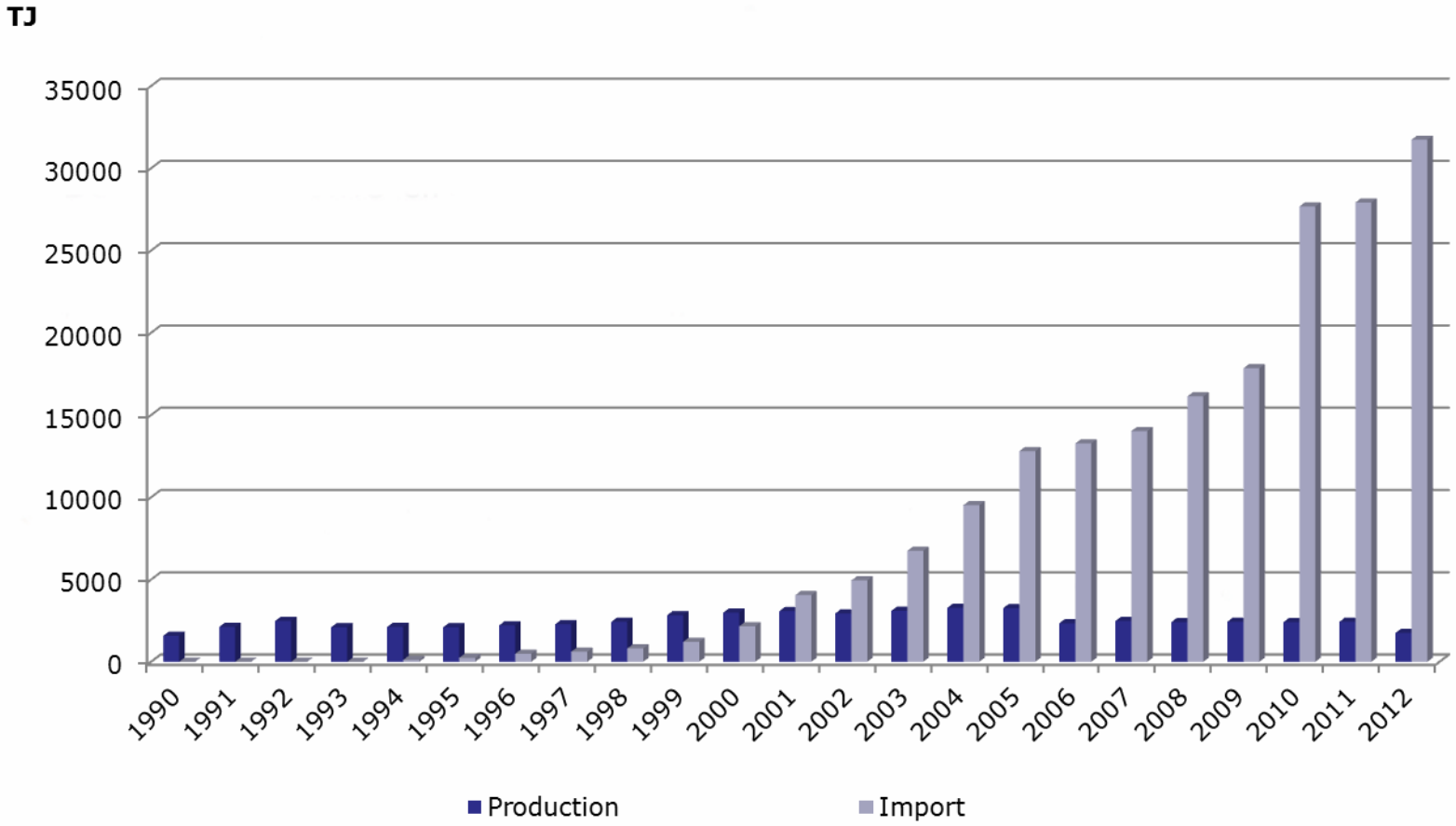
Report on wood pellets

Methods on Biomass

- Wood pellets
- Wood chips
- Firewood
- Wood waste
- Straw

Methods on biomass

Production and Imports of Wood Pellets



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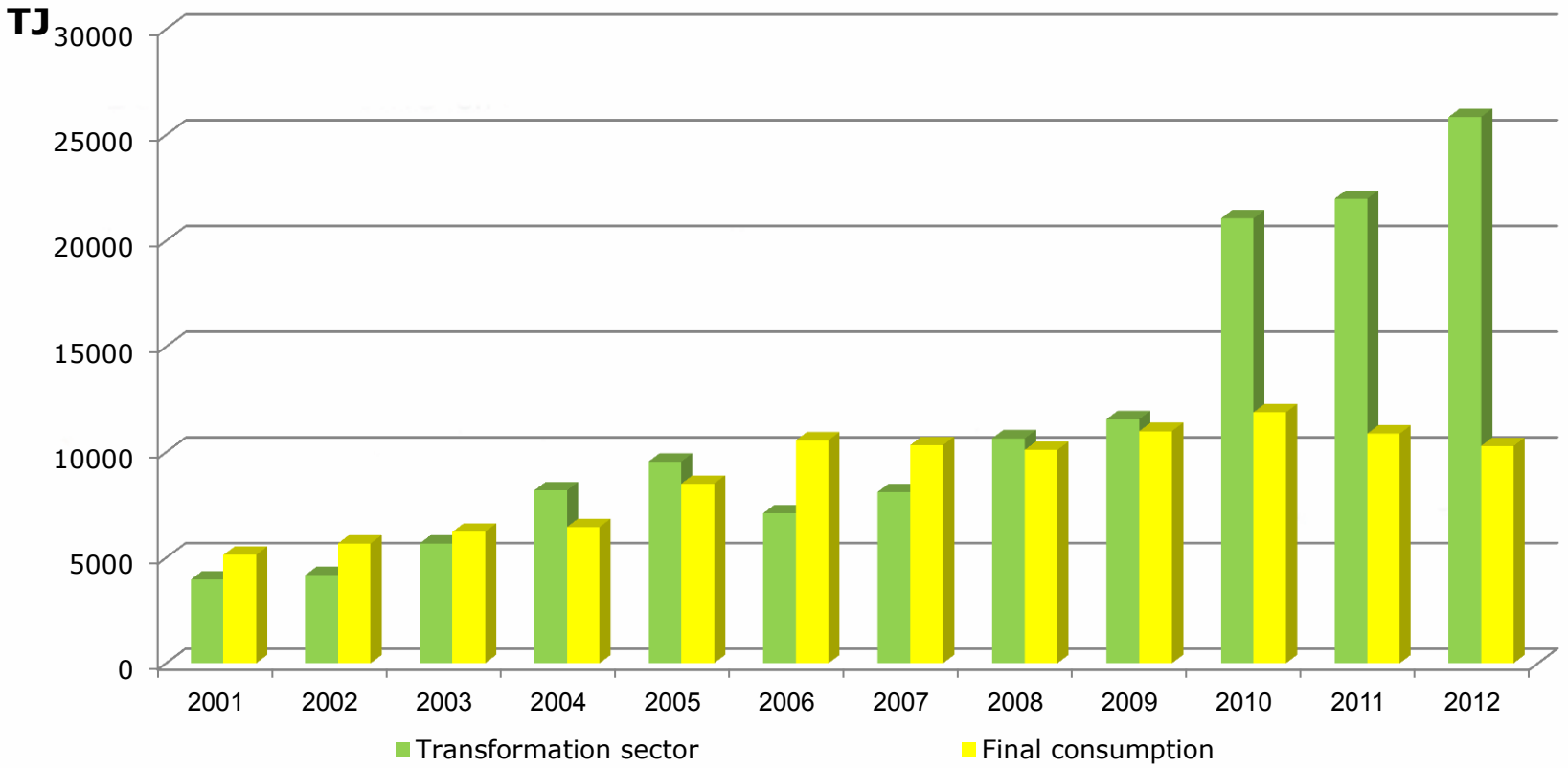
Consumption of Wood Pellets by Sector

In final consumption households are very dominating



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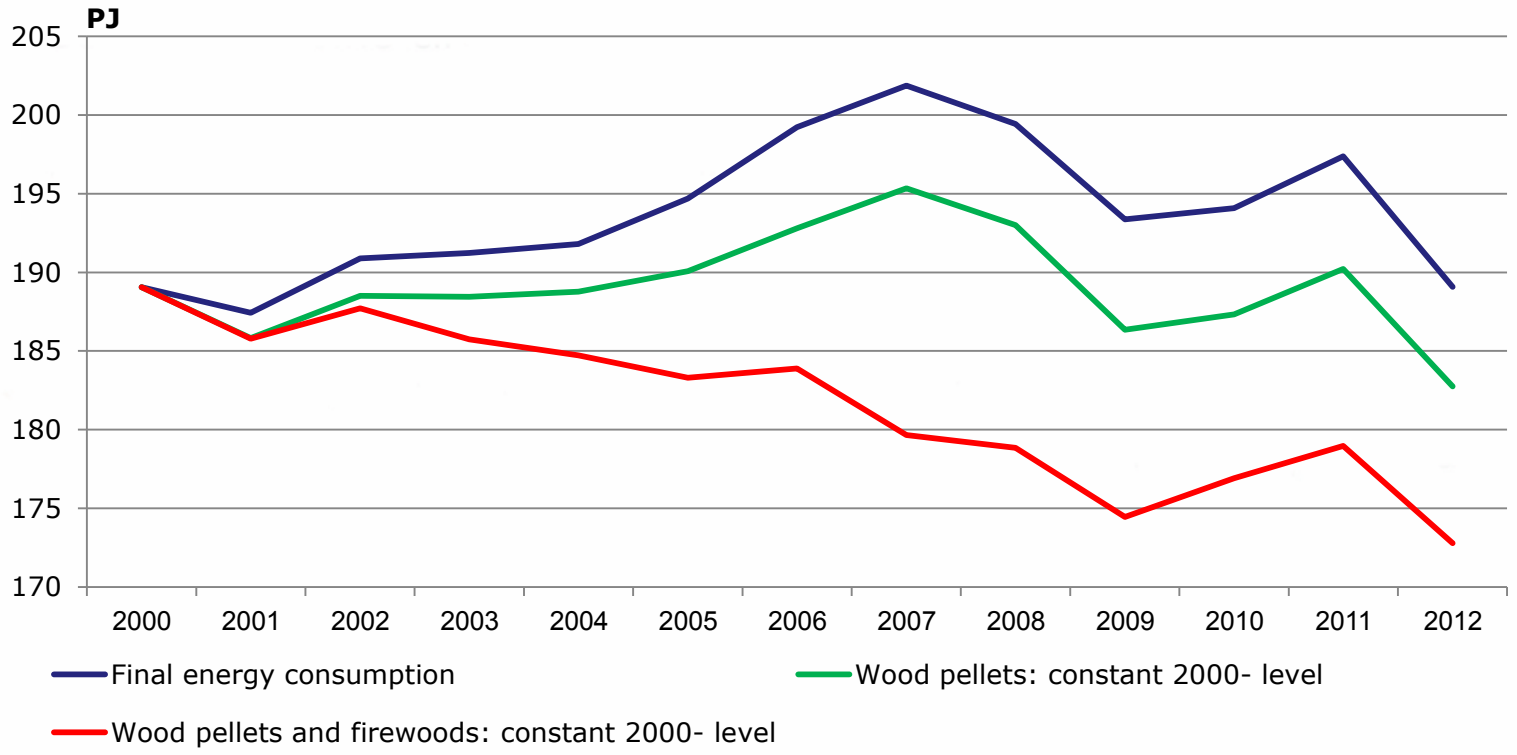
Energy Consumption in Households

Climate adjusted



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Conclusion

- The energy statistics will give a false picture of the development of energy consumption if wood pellets and firewood are not treated correctly.
- This is especially important for households.
- Without surveys on wood pellets and firewood the Danish consumption of biomass in households had been seriously underestimated.
- The energy consumption in households has increased in recent years, not decreased. Instead of savings we have seen fuel shifts.

Thank you for your attention

If you have questions, please contact me at:

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