



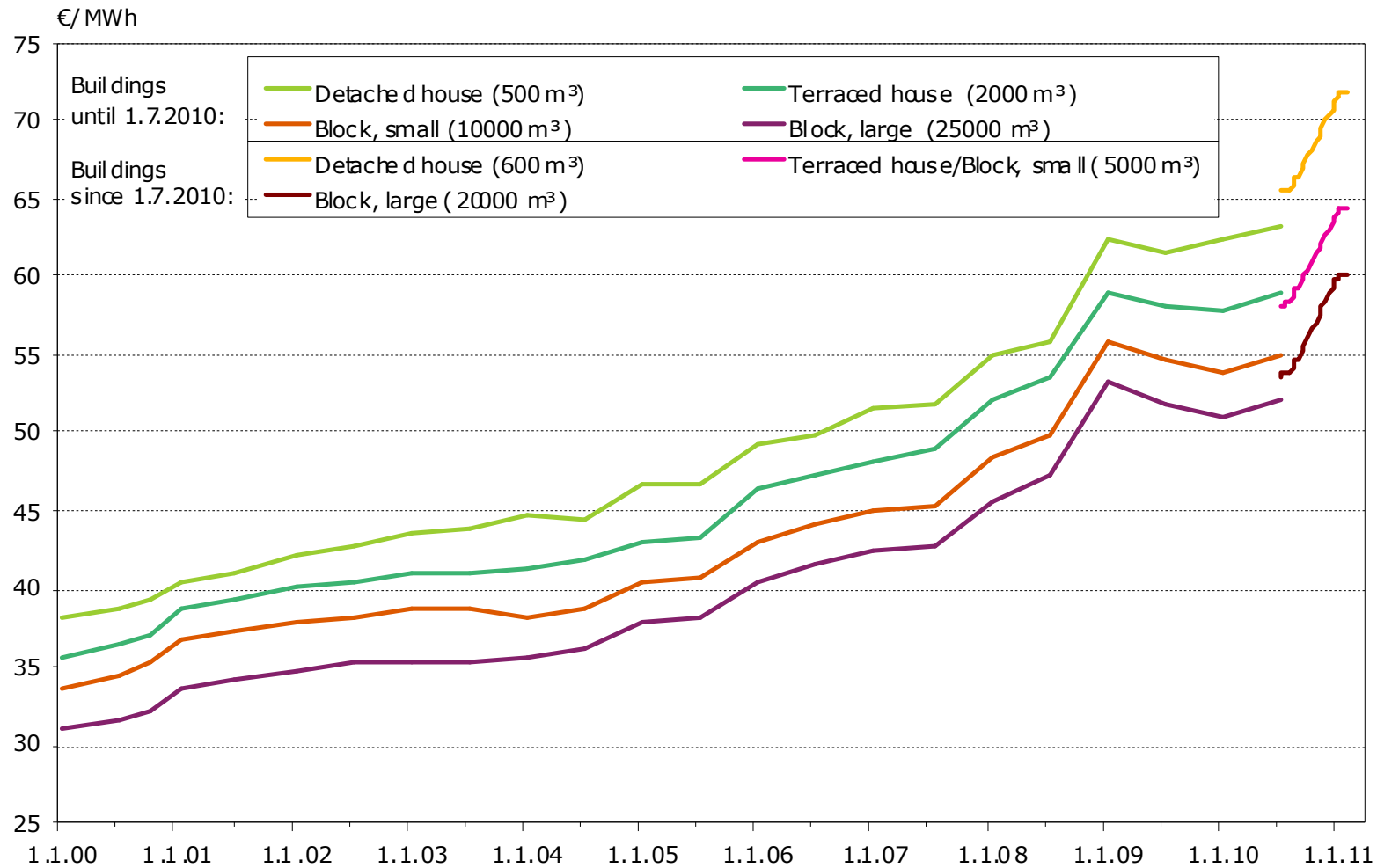
District Heat Price Formation Perspectives in Finland

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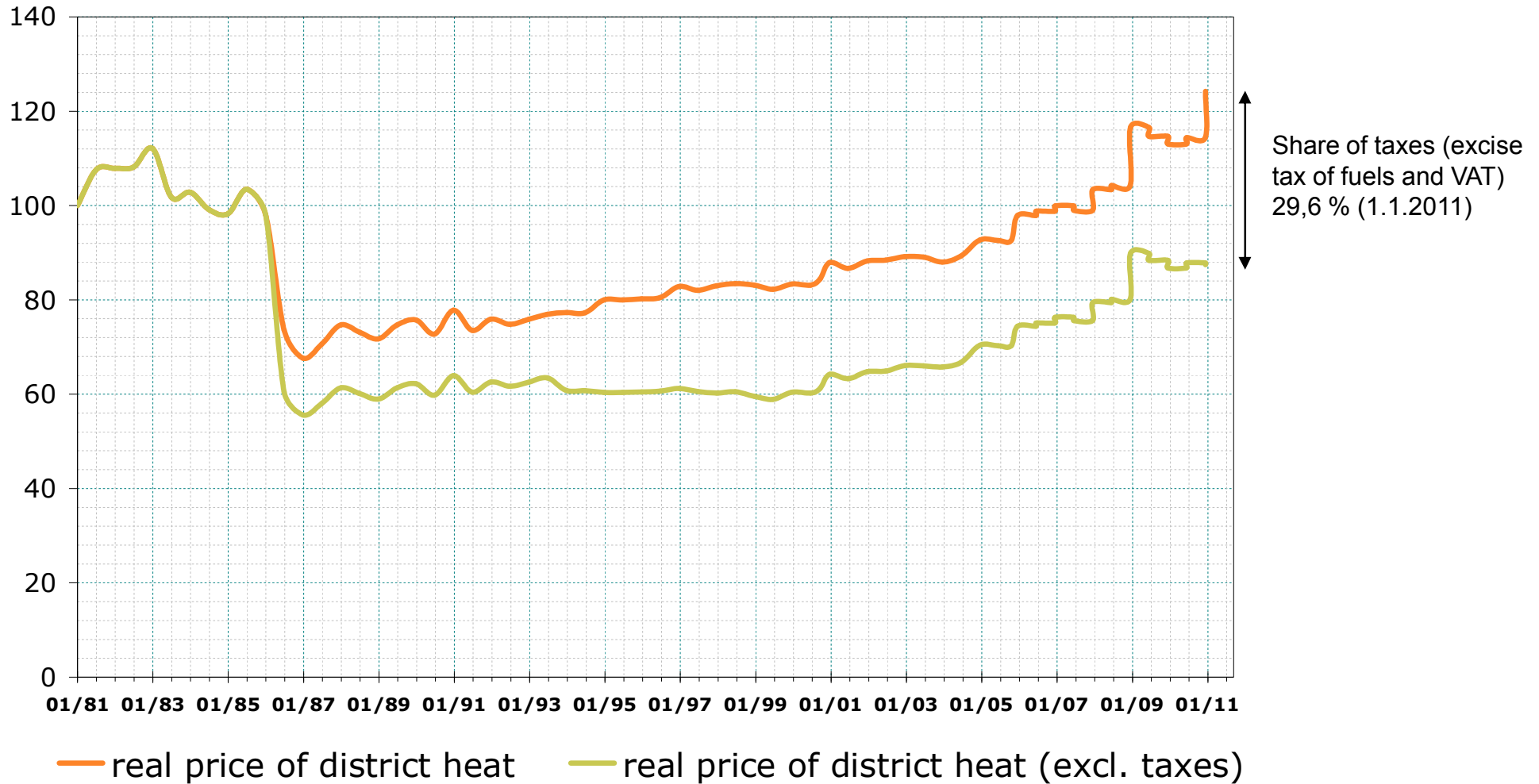
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District heating price, fixed price + energy fee €/MWh (incl. VAT)



Real price of district heat

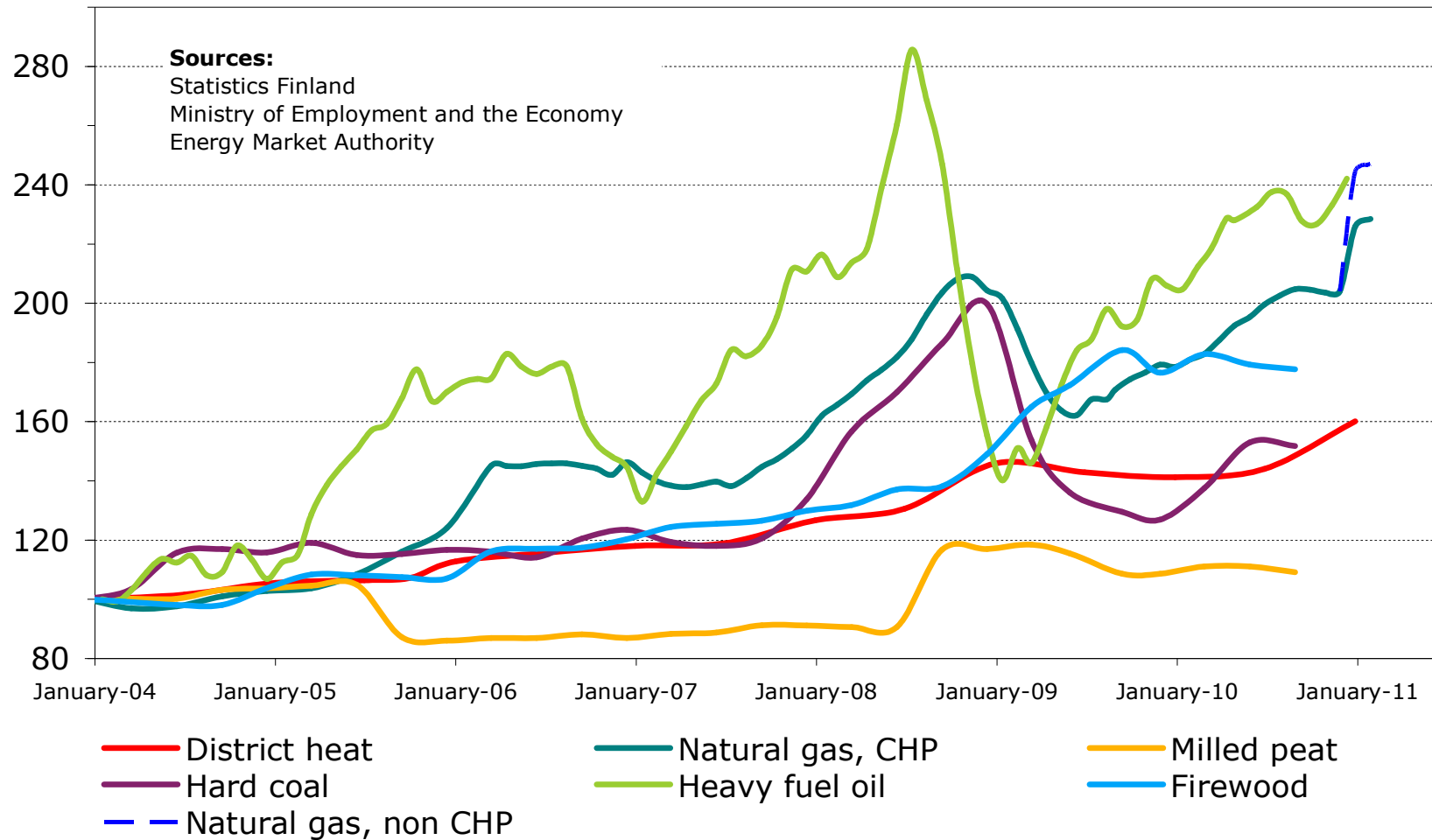
Corrected with cost-of-living index, 1.1.1981 = 100



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Prices of district heat and fuels in heat production index, January 2004 = 100



Replacement value of DH schemes 2009

| | | Million € |
|---|-----------|--------------|
| • Substations | 125 000 | 1 300 |
| – 4 000 €/single family house, others 15 000 €/building | | |
| • DH network | 12 500 km | 2 500 |
| – 200 €/m | | |
| • Heat only boilers | 14 070 MW | 1 250 |
| – Oil/natural gas/electricity 60 €/kW | | |
| – Wood/peat/other 200 €/kW | | |
| • CHP –plants | 4 420 MWe | 1 950 |
| – Coal 1100 €/kWe, DH-share 47 % | | |
| – Oil/natural gas 650 €/kWe, DH-share 34 % | | |
| – Wood/peat/other 1500 €/kWe, DH-share 47 % | | |
| • Total | | 7 000 |

District heating tariffs in Finland

- The DH companies are operated on a business basis
- Each company decides its tariffs and prices itself
- No price regulation
- Same tariffs for all kind of customers (residential, industrial, public etc.)
- The prices vary much between different companies, depending on the actual operating costs

Regulation of district heating

- No specific legislation for district heating
- Traditionally market-oriented approach, competition between different heating forms
- District heating companies are mainly supervised by general legislation like competition and consumer protection legislation, and related authorities
 - Exception: Act on Energy Services of Energy Companies (electricity, DH, fuels), supervised by Energy Market Authority
- The Finnish Competition Authority considers that DH companies are in so-called dominant market position towards their customers
 - Competition legislation prohibits the misuse of the dominant market position

Some requirements for a DH company, which is in dominant market position

- Price level of DH may not be excessive
- Price setting has to be sufficiently cost related and transparent
- It's not allowed to catch customers with a too favourable (dumping) product
- Same kind of customers must be treated in a same way
- If different products (heat, steam, electricity etc.) are delivered to the same customer, the product prices may not be artificially bound to each other
- Extra services, which are under competition, must be priced according their costs

How the DH companies have acted in the dominant market position?

- Price setting is transparent, same kind of customers have the same prices
- DH connection and sales terms of DH companies are mainly in accordance with the recommendations of the Finnish Energy Industries
- Average interruption time of DH delivery is only 1 hour per year per customer
- According the customer surveys DH customers are quite satisfied
- Finnish Competition Authority and consumer authorities get only a few complaints annually

More regulation for DH or deregulation?

- Finnish Competition Authority wants to have closer look on DH business, once again there is a study underway
- Energy Market Authority supervises already the implementation of the Act on Energy Services provided by DH companies. Do they want to do more?
- Some consultants, media and even member companies of the FEI want to have analogical regulation for DH as it is for electricity and natural gas
- Examples of other Nordic countries, Baltic States, Poland,...
- For the moment, Ministry of Employment and the Economy still considers that DH business doesn't need further supervision

=> Conclusion: Risk of Act on DH, including something on price setting, in Finland has increased

New heat pricing models needed

- There is a need for clear and transparent pricing models, which enable the success of district heating also in more energy-efficient buildings and a warmer climate
- Examples (Source: Kaukolämmön hinnoittelumallit, Energy-An Consulting, 2009):
 - Neglecting the connection fee collection in order to reduce barriers of new customers to connect and to foster the connection process
 - Introducing a separate connection fee based on the length and diameter of the connection pipeline apart from the traditional capacity based connection fee
 - Offering the customer various options to pay for the connection: either in full at once or spread over the years to come with a decent interest rate
 - Offering “Green Heat” that is based on the use of renewable energy sources
 - Extending the services of the heating company beyond the primary gate valves of the substations to extend the business opportunities. At present, the Finnish company has activities neither with the substations nor with indoor piping of buildings
 - Introducing time dependent pricing, which means separate pricing for the summer and winter season due to variable costing of heat in CHP driven systems
 - Offering new pricing for customers that would already have another heat source parallel to DH, say solar or biomass based heating, for instance. In such a case, DH would act as peak and back-up service. Therefore, the unit prices of ordered capacity and energy of DH would need to be relatively high to cover the costs