



34 Congress Euroheat & power

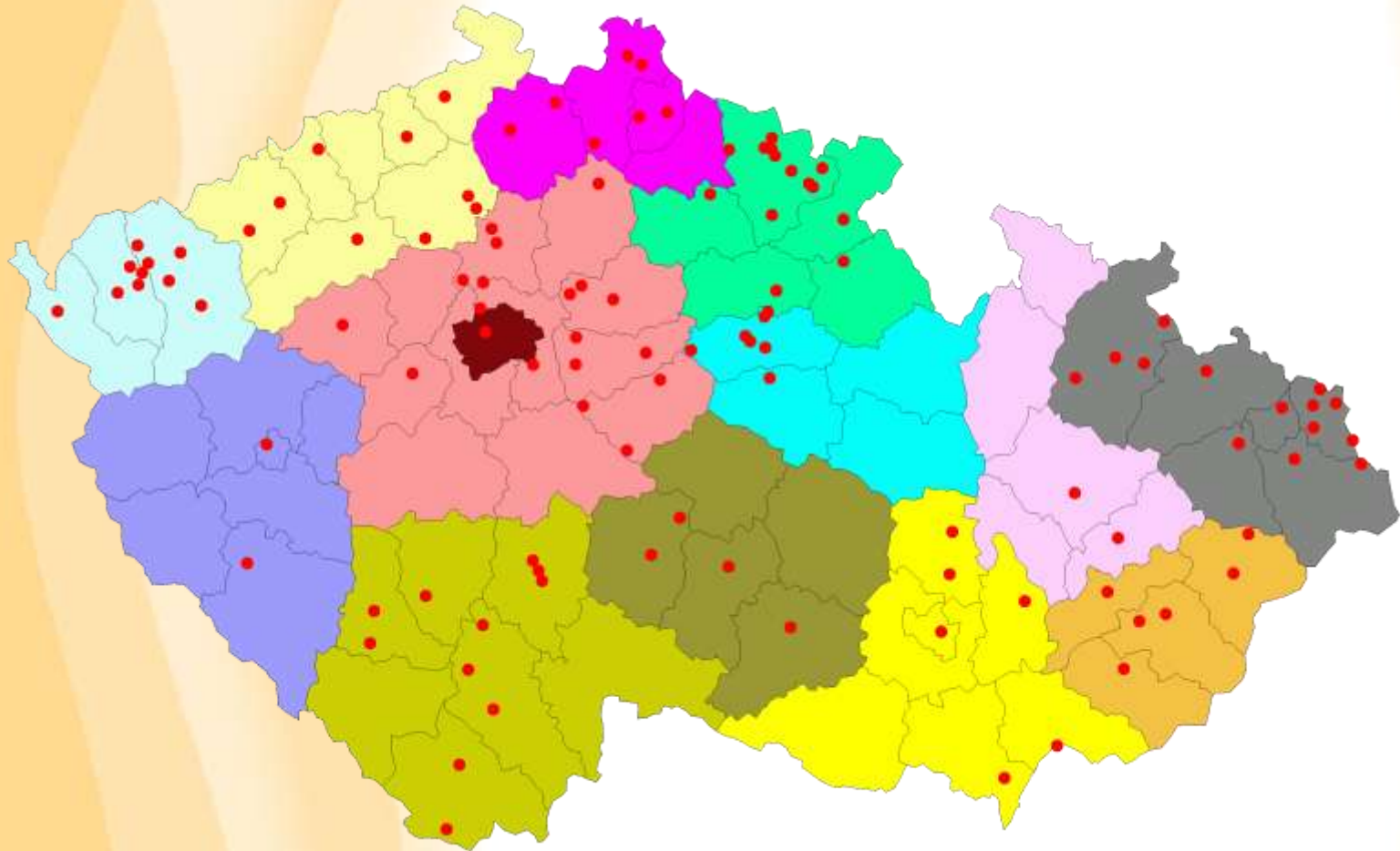
Workshop „H“: Market Intelligence

**CHP/DH market share
and market initiatives in the Czech Republic**

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Association for District Heating of the Czech Republic

CR localities supplied by ADH CR members



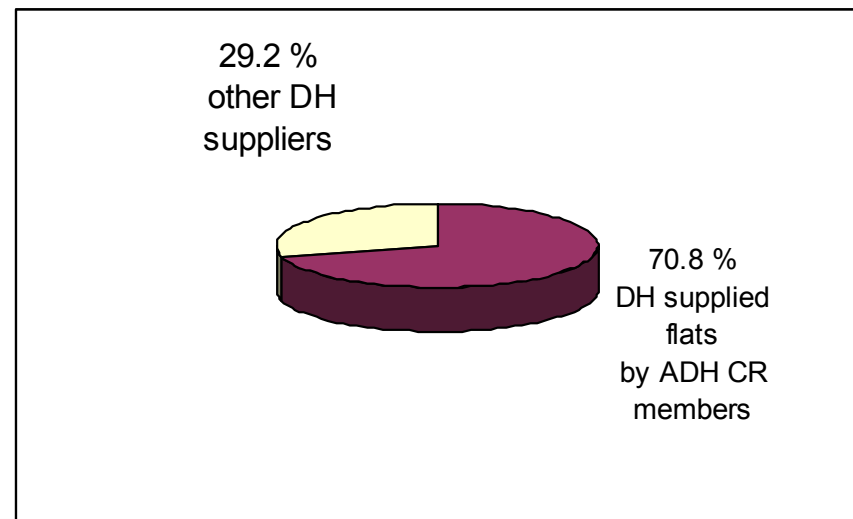
DH market share and position

DH supplies over **1.55 mio.** households, i. e. **41%** of Czech households

In average the DH share in urban areas reached 56.8 % and in rural areas 9.7 %.

From which **ADH CR members** (57 comp.) supply

- **1.105 mio** households, **(70.8 %)**
- in all 21 cities (over 50 thousands inhabitants)
- there we supply 3.340 mio inhabitants, 73 % households



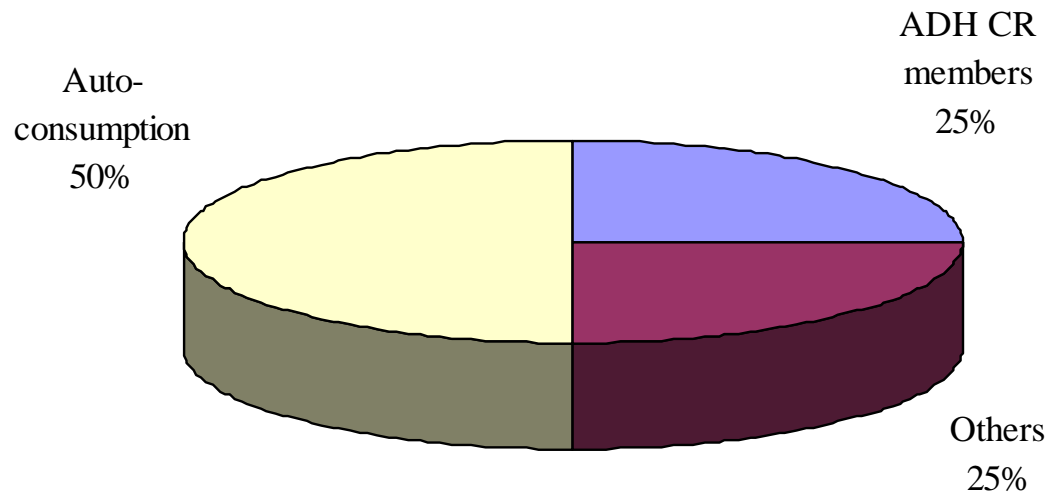
DH market share and position – TOP 10 DH companies

"Top Ten" of the Czech CHP/DH sector regarding the number of supplied households (flats)

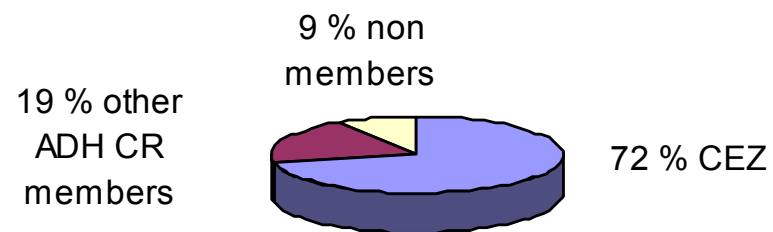
Company	No. flats	Supplied localities
Dalkia CR, a.s.	265 850	operate DH systems in 14 localities (cities)
Pražská teplarenská a.s.	265 000	Prague, Neratovice - DH feeder Melník - Prague (62 km)
CEZ Teplarenská a.s.	117 507	operate DH systems in more than 30 localities
Teplárny Brno, a.s.	92 000	Brno
MVV Energie CZ s.r.o.	87 405	operate DH systems in 12 localities
International Power Opatovice, a.s.	57 000	Hradec Králové/Pardubice/Chrudim/Rybitví/Lázně Bohdaneč/
Plzeňská teplarenská, a.s.	41 500	Pilsen
Group Atel	36 500	Kladno, Zlín
United Energy, a.s.	35 500	Most, Litvínov
Teplárna České Budějovice, a.s.	27 450	České Budějovice
Together	1 025 712	flats DH supplied for space heating + warm water preparation

ADH CR market share and position in CR heat and power production

ADH CR members share in HEAT production in CR



ADH CR members share in CR power production





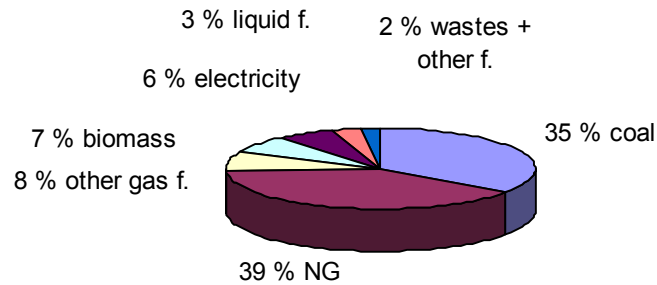
CR heat production and heat supply

Annual CR heat production (PJ/a)		
Power Plants and CHP plants -	156	39%
Heating Plants - Centralized	64	16%
Local Boilers - Decentralized	180	45%
Total	400	100%

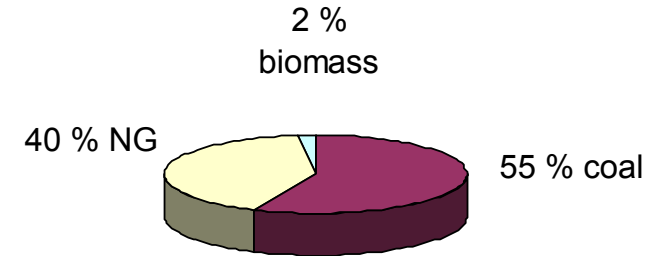
Installed heat loads by (ERO) licences for heat supply (MW)					(%)
Types of plants	on steam	on warm water	on hot water	In total	
Block boiler houses	514,2	3 603,40	204,6	4 322,20	12,0
Heat only boiler plants	3 535,10	1 326,50	1 401,60	6 263,10	17,4
CHP plants	15 432,30	1 409,80	1 409,00	18 251,10	50,6
Power plants	3 835,60	9,4	1 268,10	5 113,00	14,2
Others	1 798,80	85,6	235,8	2 120,20	5,9
In total	25 116,00	6 434,60	4 519,10	36 069,60	100,0

Heat supply in CR – fuel structure

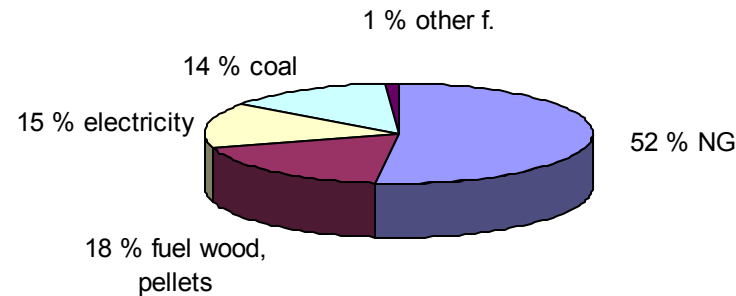
CR Gross heat production - fuel structure



Fuel structure of DH supply for households

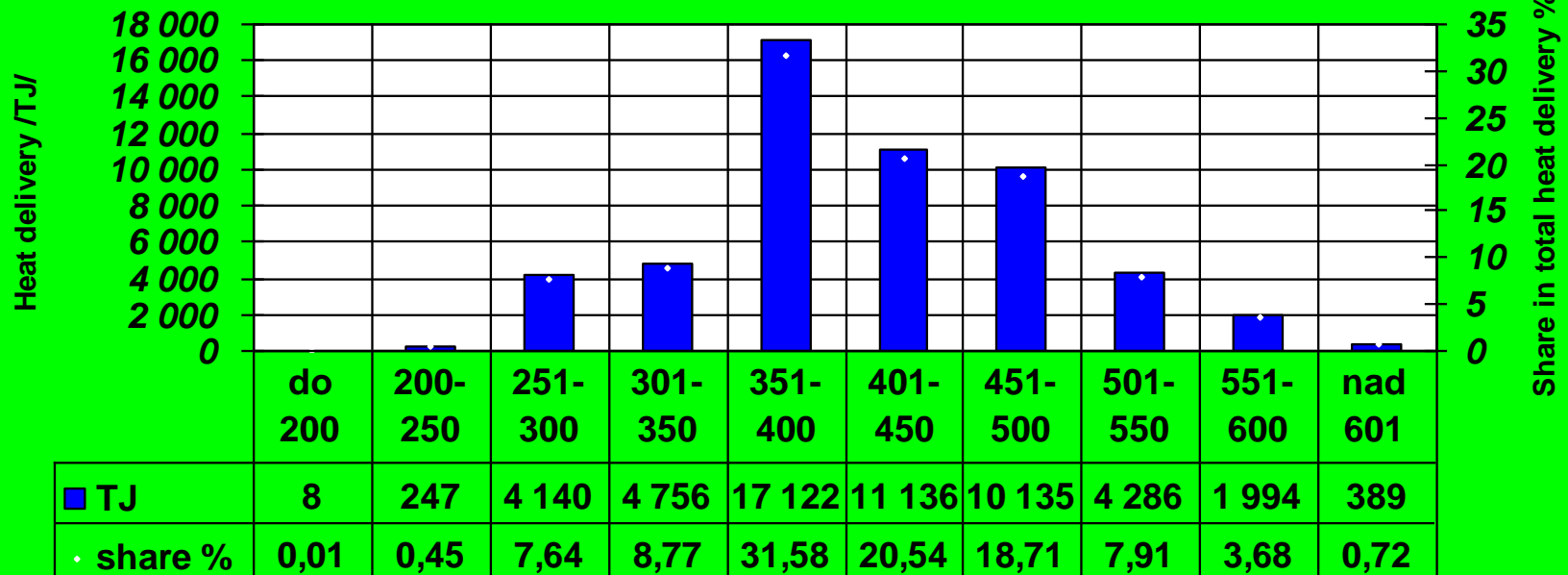


Individual heating - fuel structure



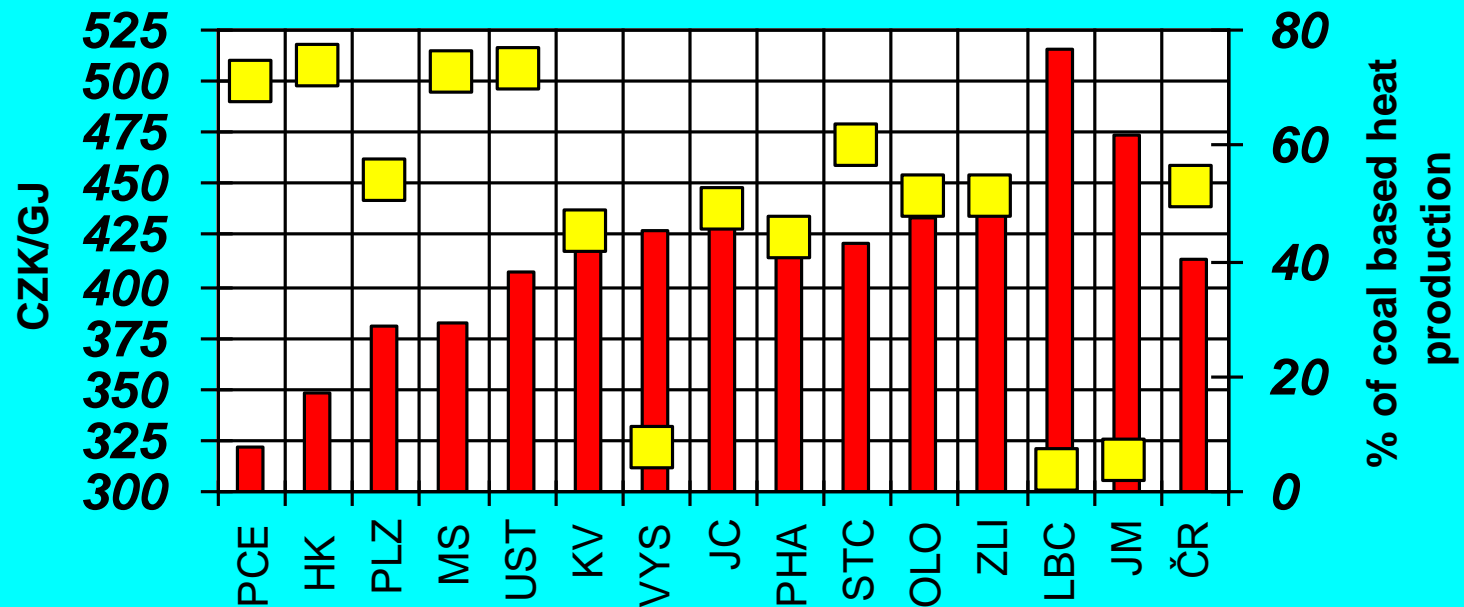
DH supply for households – price differences

Amount and share of heat delivery in price levels 2007
(< 200 - 601CZK/GJ <)



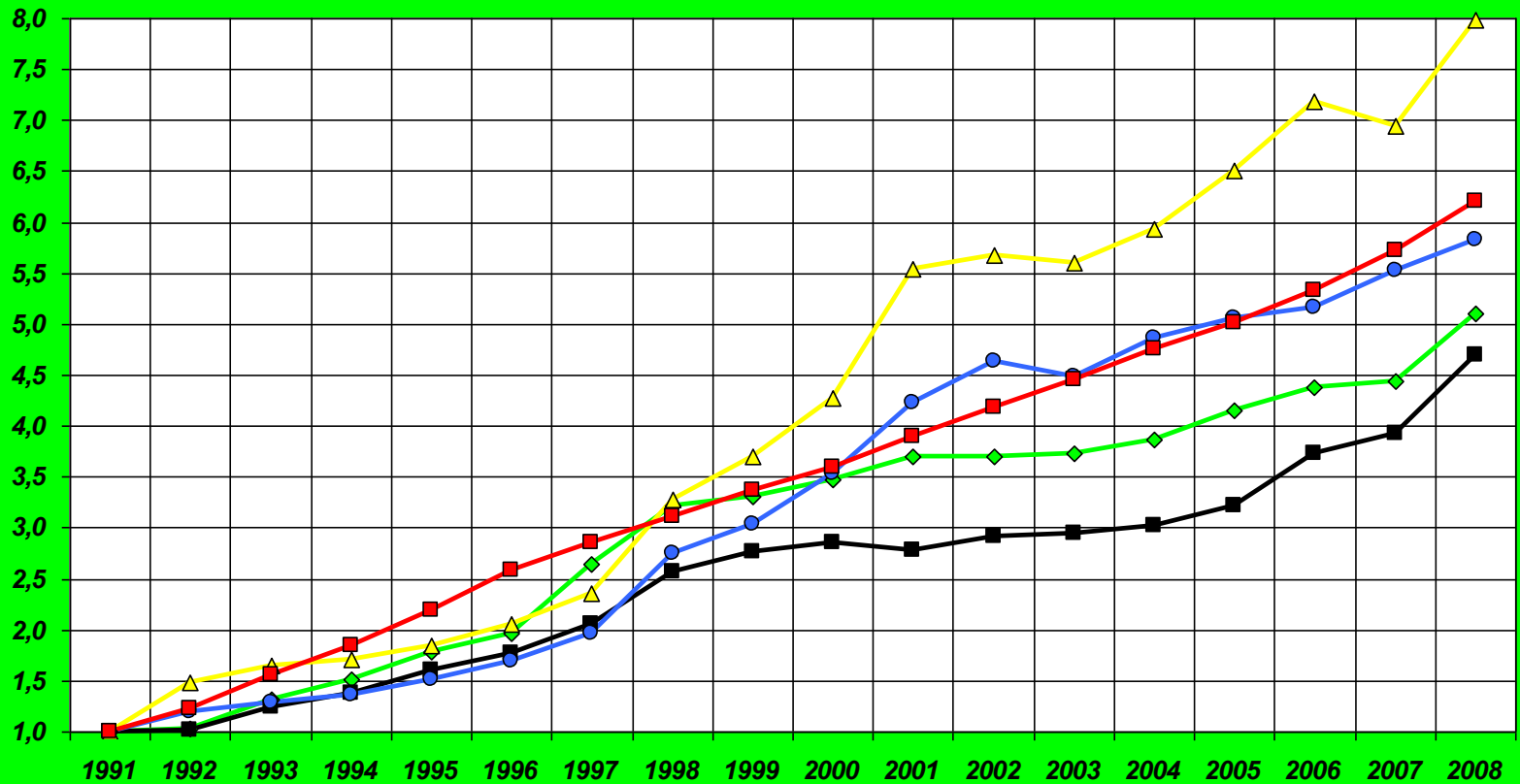
DH supply for households – price differences (influence of fuel prices)

Average heat price relating to coal based heat production in CR districts in 2007



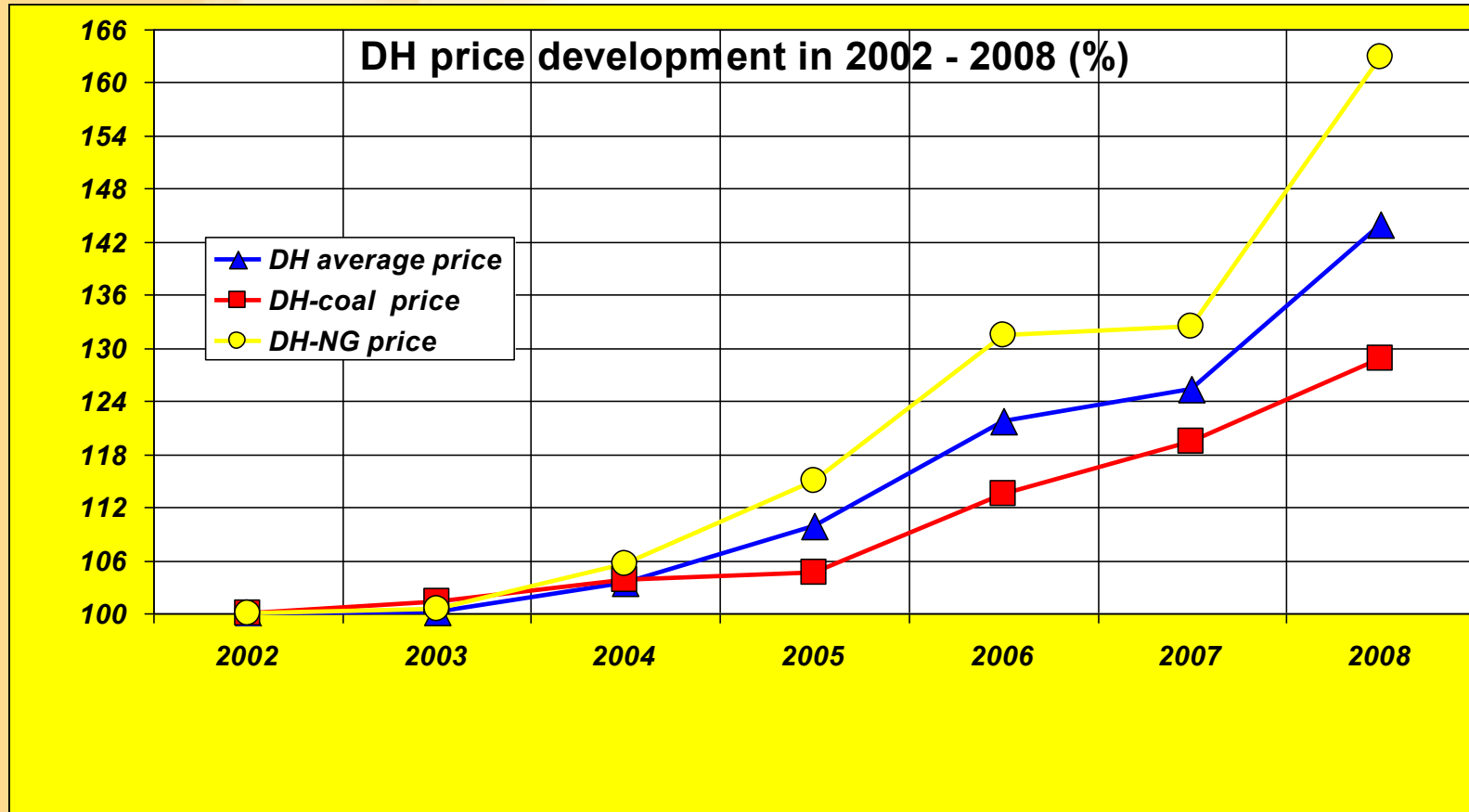
Market conditions – costs of alternative kinds of heating

Space heating costs increase and average wage development, comparison of alternative heating costs (households, 1991 - 2008)



◆ District Heating ■ Brown coal ● Electricity ▲ Natural gas ■ Average wage

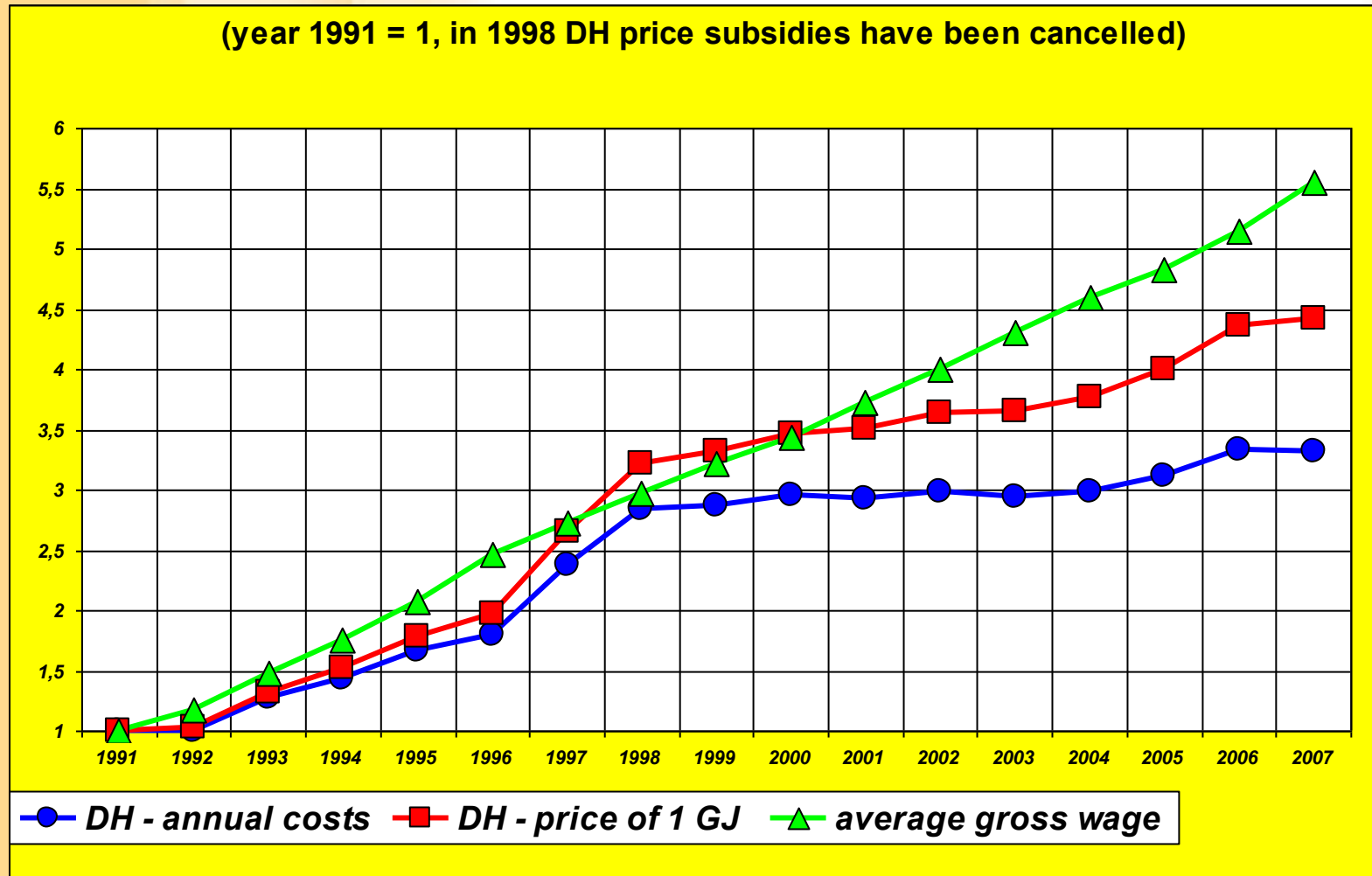
Market conditions - DH price development



Market conditions - DH price development

Consumers re-orientation from 1 GJ price to total annual bill

(year 1991 = 1, in 1998 DH price subsidies have been cancelled)



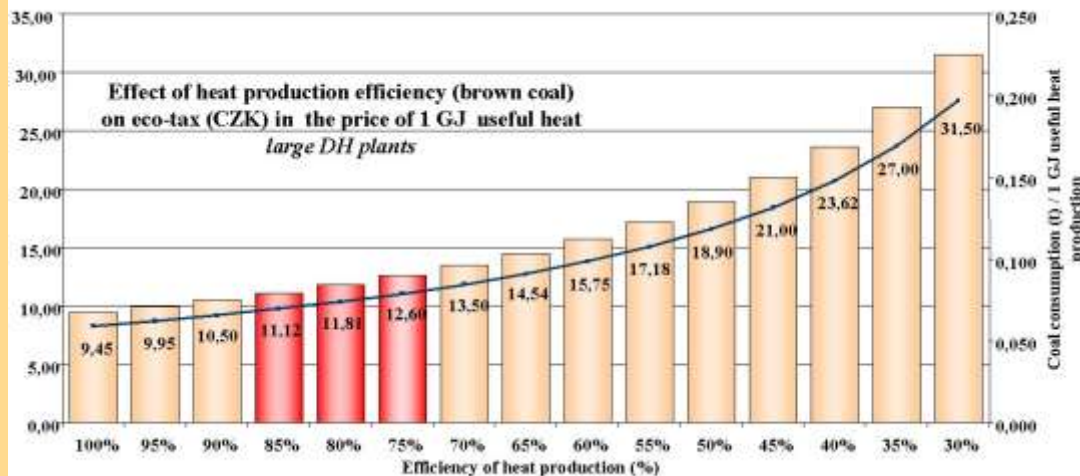
Market conditions 2008 – VAT, Eco-tax

- VAT increased from 5 up 9 %
- Eco-tax has been introduced
 - on coal based DH (HOBs)
 - natural gas based DH/HOBs and house boilers (over 50 kWt)

Eco-tax relised: CHP/DH

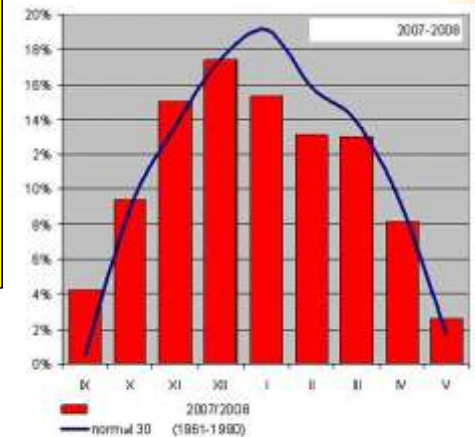
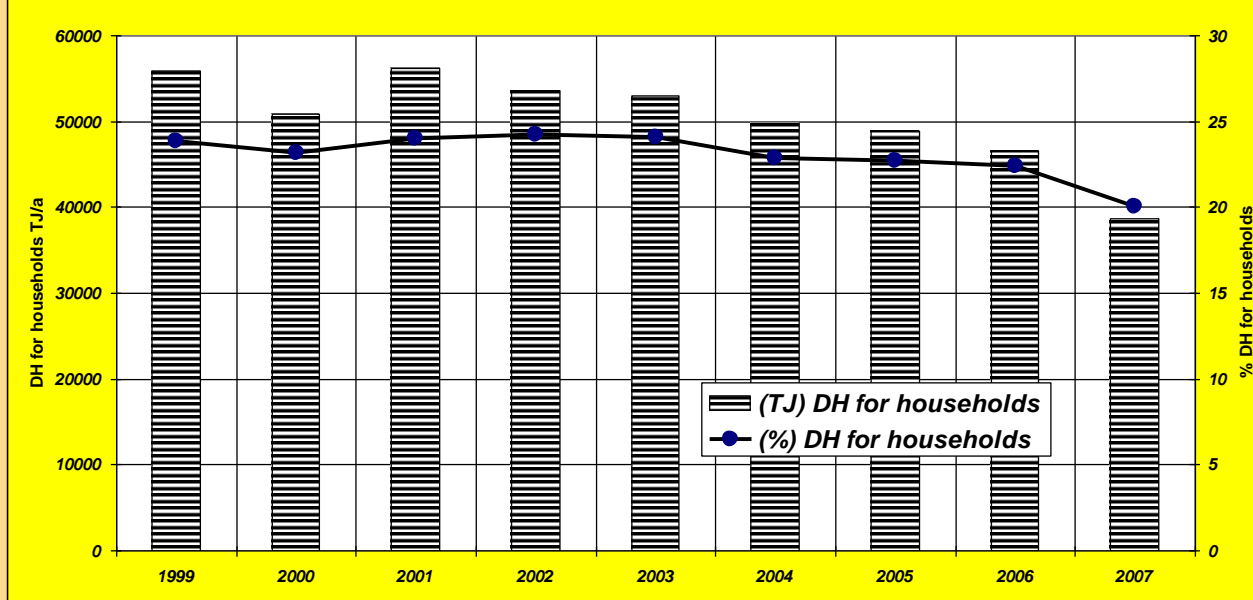
Effect of VAT increase (5 - 9 %) and Eco-tax imposed since 2008 (CZK)

	2001	2002	2003	2004	2005	2006	2007	2008
VAT	15,1	15,7	15,8	16,3	17,3	18,8	19	36,5
Eco-tax	0	0	0	0	0	0	0	5
An average heat price (VAT excl.)	302,9	314,3	315,2	325,7	345,7	369,2	381	400



Market conditions 2008 – DH consumption development

The amount (TJ) and % of DH for households in 1999 - 2007



shares of heat demand in months (%) and the 30-years normal

Market conditions – RES in power production

Gross electricity production 2007	(GWh)	(%)
Steam thermal (coal) power plants	56728	63,9
CC, gas and combustion power plants	2473	2,8
Nuclear power plants	26172	29,5
Hydro < 1 MW	510	0,6
Hydro 1 - 10 MW	492	0,6
Hydro > 10 MW	1077	1,2
Biomass plants	993	1,1
Biogass	128	0,1
Landfill plants	55	0,1
Wind plants	125	0,0
PV plants	2	0,1
In total	88755	0,0
		100,0

Market opportunities - RES potential for CHP/DH

RES suitable for CHP (PJ/a)	Dendromass	Fytomass	Biogas	In total
RES potential for CHP in total	39,9	77,9	6,2	124
of which in present use of CHP	4,3	0,2	0,1	4,6
of which in present use for only electricity production	15,7	2,8	0,9	19,4
of which in plants under preparation	15	1,9	1	17,9
of which probably remaining potential	4,9	73	4,2	82,1



Market conditions – other RES and waste in Czech DH sector

Market conditions – other RES and waste in Czech DH sector

Solar thermal energy - hot tap water preparation, still very expensive for wider and large scale use

Heat pumps offered by their producers for the new family houses, in DH heat pumps used in geothermal projects

Waste to energy - 3 incinerations plants with DH delivery, SAKO Brno most successful heat delivery to DH network in comparison to Liberec and Prague incineration plants, in Brno after the present reconstruction 220 000 t/a municipality waste used for CHP production, a new 20 MWe condensing turbine for an optimal operation also during the summer months with low heat demand

Geothermal energy used in DH system in Decin (280 TJ/a – of which 1/3 from geothermal energy), other projects are under preparation (Litomerice).

Market conditions 2008 – DH consumption development and further outlooks

An expert study recommendations for the CR „energy mix further development“:

Potential lack of fuels is more crucial for heat than electricity sector.

The necessary heat demand and its development need to be covered with increasing efficiency on the supply and also savings on final consumption side.

Heat could not be imported, it is necessary to be produced on site or close to place of consumption. The potential success would not be based on networks ownership but on reliable fuel resources.

ADH CR answer: Power plants and CHP plants produce 80 % heat in CHP technologies. CHP production in CR covers 59 % of DH demand and 27 % heat demand of the CR. Installed efficient technologies resulted in better ecology operation of the plants.

Thank you for your attention.

More information in

Euroheat – Country by Country DHC Survey 2009

www.tscr.cz

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