



Promoting innovative cogeneration in cities – Examples from Berlin and other pilot cities

Green cogeneration in Riga and Latvia?

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Content

- General framework in Latvia
 - Current RES support policies
 - Current RES situation
 - RES target and cogeneration
- Examples from:
 - *Salaspils municipality* – was cogeneration a good deal? In the current legislative framework can they switch to green cogeneration?
 - *Riga municipality* – will the development of the Latvian energy sector leave space to green cogeneration?

Current RES support policies in Latvia

- **RES-E:**
 - A feed-in tariff is the main instrument currently used.
 - A previous tendering scheme for wind farms with a capacity of more than 0.25 MW was canceled.
 - The feed-in tariff is capped so that electricity producers have the right to sell their electricity at the above described fixed price until a certain share of RES-E in the total electricity consumption is reached.
 - Some Latvian taxes are favorable to RES-E as well as the availability of support from EU structural funds.
 - RES-E has no priority of access to the grid, but operators are entitled to the connection of their systems to the grid according to the principle of non-discrimination
- **RES-H&C:**
 - Financial incentives (direct grants and soft loans) are the main category of support available in Latvia for the promotion of RES-H.
 - Projects are financed through EU structural funds in 2007–2013 in form of direct funds, which will contribute at least to 25% to the total eligible costs.
 - In this scheme, investments in constructions of new CHP and reconstruction of existing boilers into CHP utilizing RES can be supported.

Current RES situation in Latvia

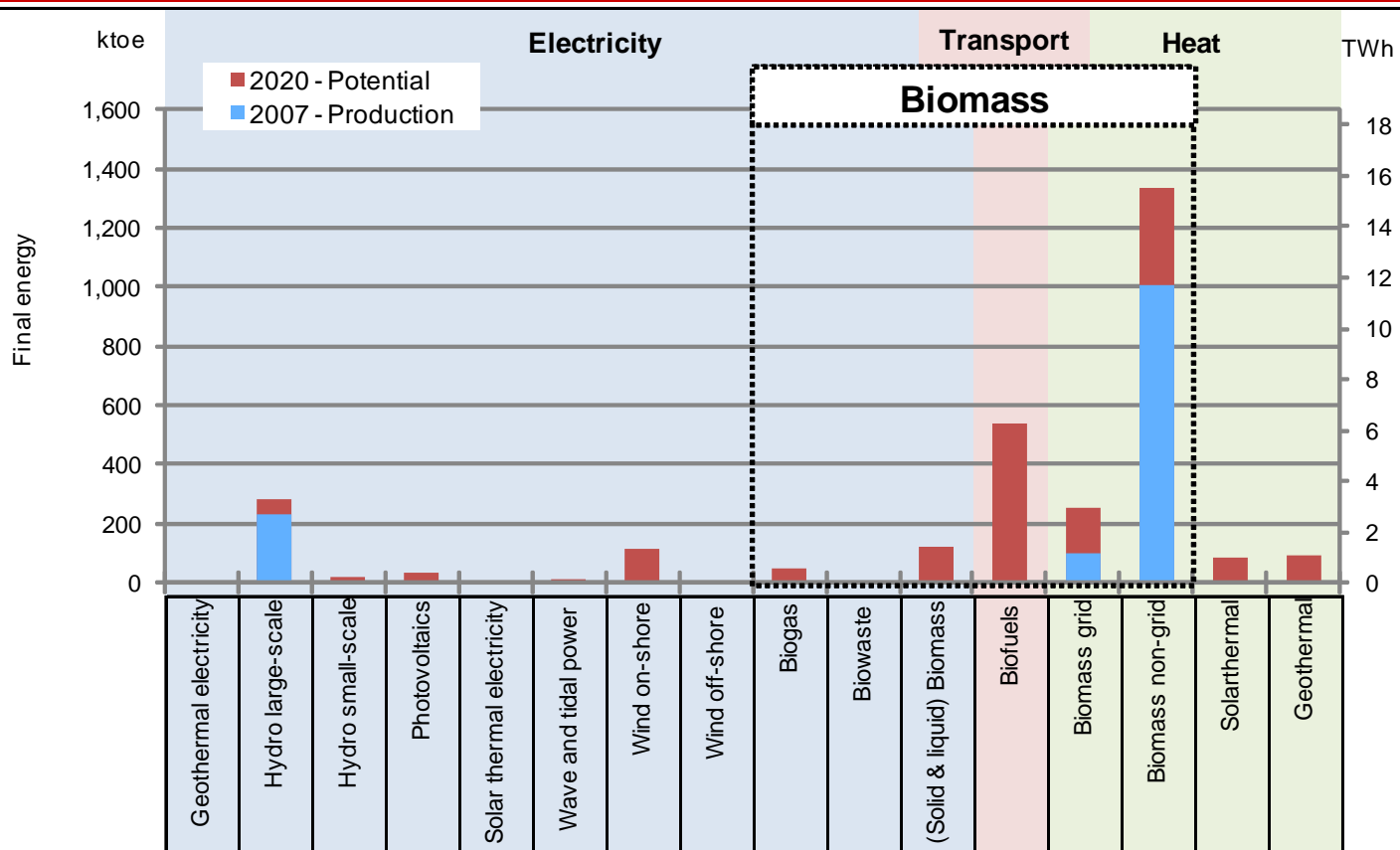
Development of gross final energy demand & RES in Latvia 1990 – 2007

Gross final energy demand		[Unit]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Electricity sector	E	ktoe	880	849	680	553	538	536	546	544	544	521	509	530	544	568	583	606	636	668
Heat sector	H	ktoe	4,922	4,869	3,985	3,473	3,073	2,909	2,926	2,819	2,725	2,538	2,297	2,461	2,471	2,582	2,611	2,620	2,642	2,599
Transport sector	T	ktoe	1,097	1,032	857	791	749	714	709	704	691	680	747	874	899	959	1,012	1,066	1,179	1,333
Total		ktoe	6,899	6,750	5,522	4,817	4,360	4,159	4,181	4,067	3,960	3,739	3,553	3,865	3,914	4,109	4,206	4,292	4,457	4,600

Total RES deployment		[Unit]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RES-Electricity	RES-E	ktoe	387	281	217	247	284	253	160	254	371	237	243	244	214	201	275	294	240	243
RES-Heat	RES-H	ktoe	632	756	753	838	869	969	1,008	998	994	986	910	1,010	989	1,070	1,118	1,124	1,128	1,107
Biofuels	RES-T	ktoe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	2
RES TOTAL		ktoe	1,019	1,037	970	1,085	1,153	1,222	1,168	1,252	1,365	1,223	1,153	1,254	1,203	1,271	1,393	1,420	1,371	1,352
RES share on gross final energy demand		%	14.8%	15.4%	17.6%	22.5%	26.4%	29.4%	27.9%	30.8%	34.5%	32.7%	32.4%	32.4%	30.7%	30.9%	33.1%	33.1%	30.8%	29.4%

[Source: Eurostat]

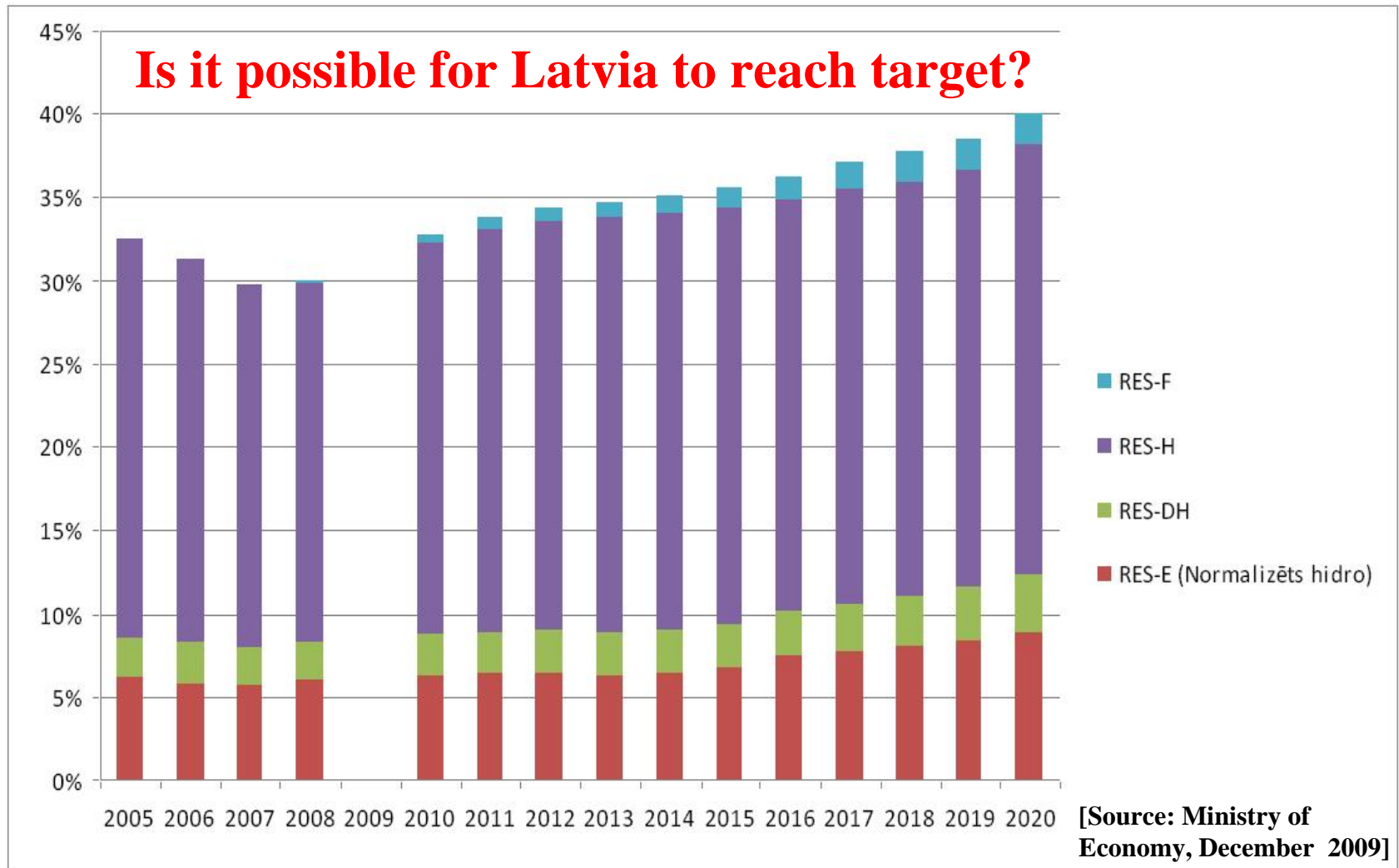
RES Production and Potential in Latvia



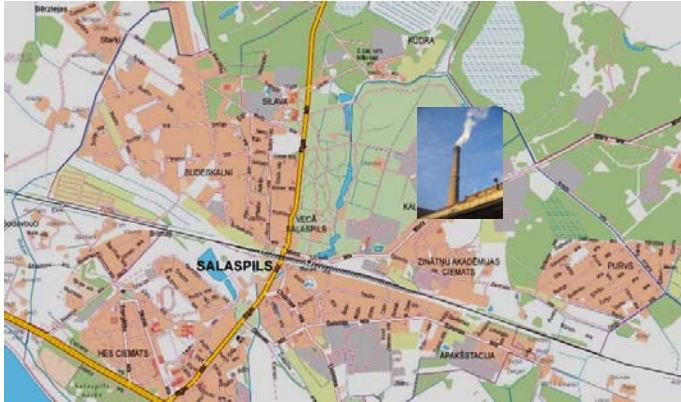
	Geothermal electricity	Hydro large-scale	Hydro small-scale	Photovoltaics	Solar thermal electricity	Wave and tidal power	Wind on-shore	Wind off-shore	Biogas	Biowaste	(Solid & liquid) Biomass	Biofuels	Biomass grid	Biomass non-grid	Solarthermal	Geothermal
Production 2007 [ktoe]	0	229	6	0	0	0	5	0	3	0	0	2	103	1,004	0	0
Production 2005 [ktoe]	0	281	5	0	0	0	4	0	3	0	1	3	103	1,021	0	0
Production 1997 [ktoe]	0	253	1	0	0	0	0	0	0	0	0	0	127	871	0	0
Ø annual production growth 2005-2007	-	-10%	5%	-	-	-	6%	-	3%	-	-9%	-18%	0%	-1%	-	-
Ø annual production growth 1997-2007	-	-1%	26%	-	-	-	49%	-	-	-	-	-	-2%	1%	-	-
Total realisable potential by 2020 [ktoe]	1	284	21	31	0	9	112	6	45	2	123	537	256	1,335	85	92

[Source: Fraunhofer ISI, March 2010]

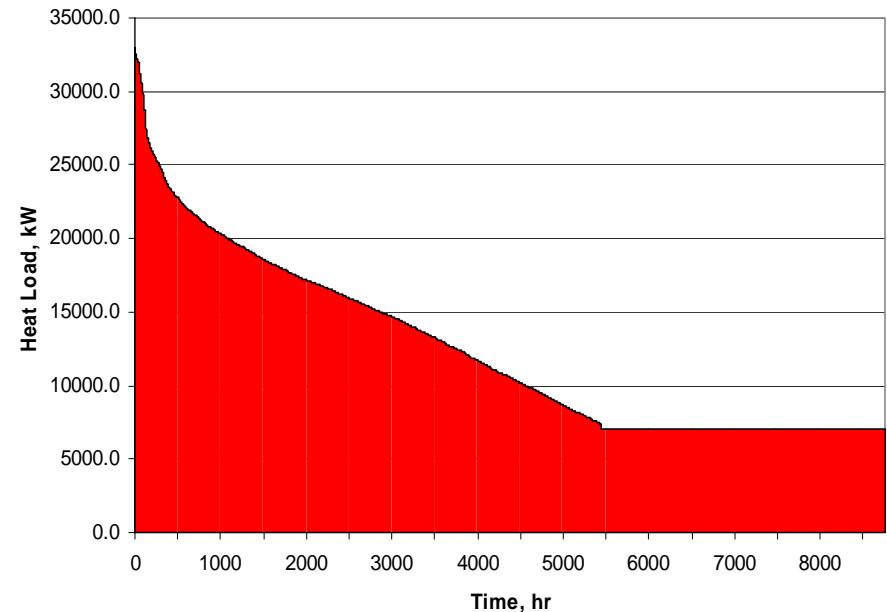
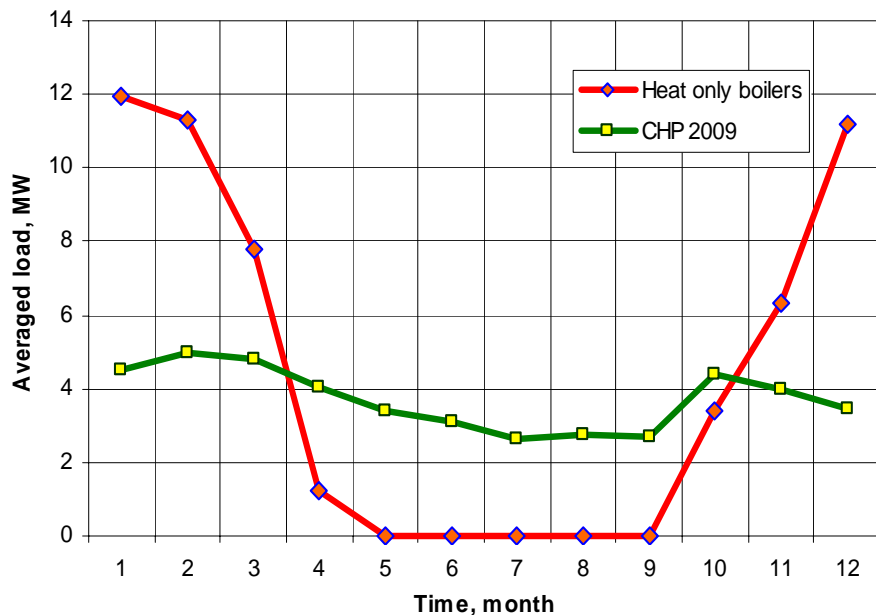
RES target for Latvia



Salaspils Municipality

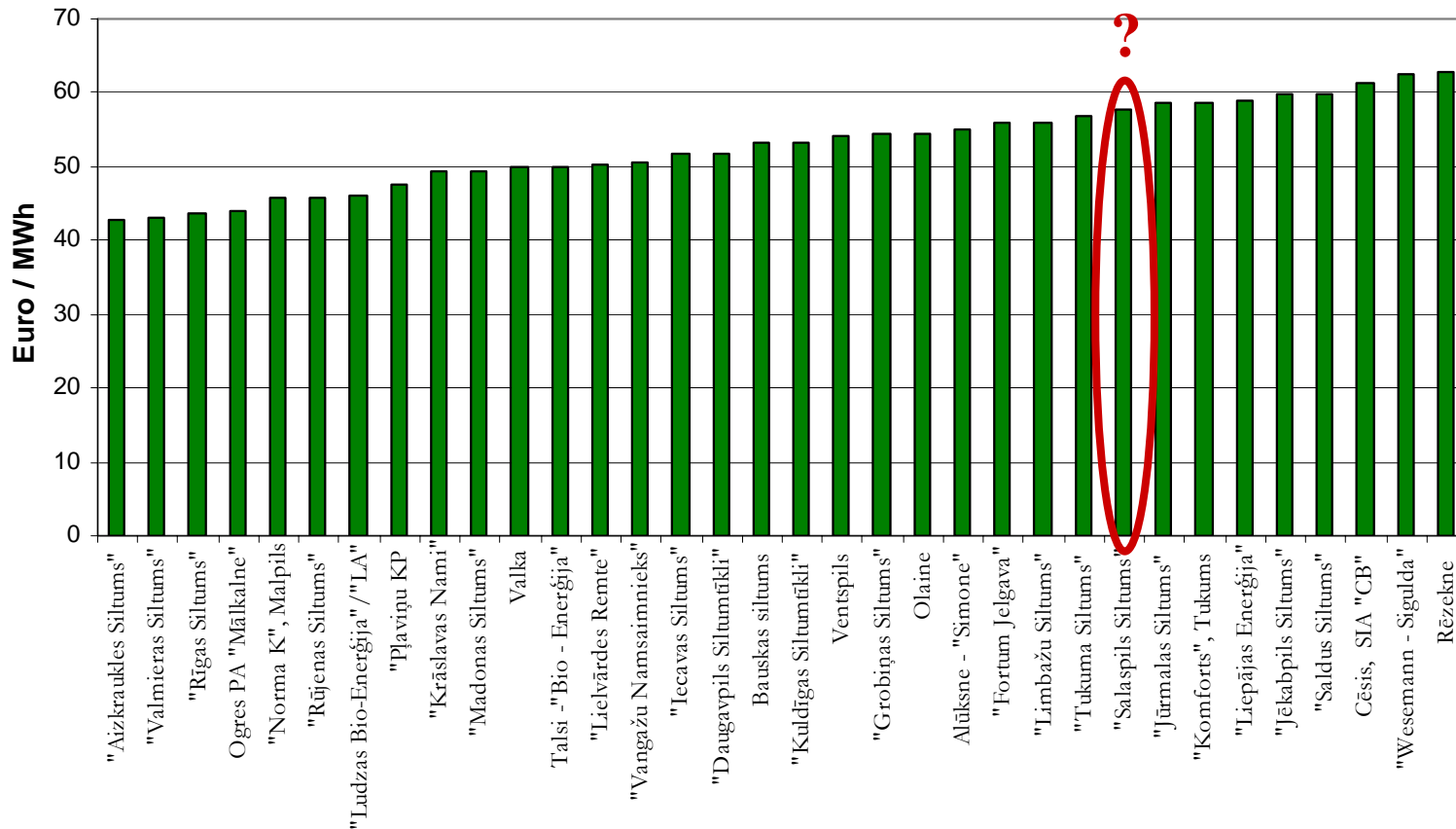


- Riga region
- 22300 inhabitants
- DH company: SIA “Salaspils Siltums”

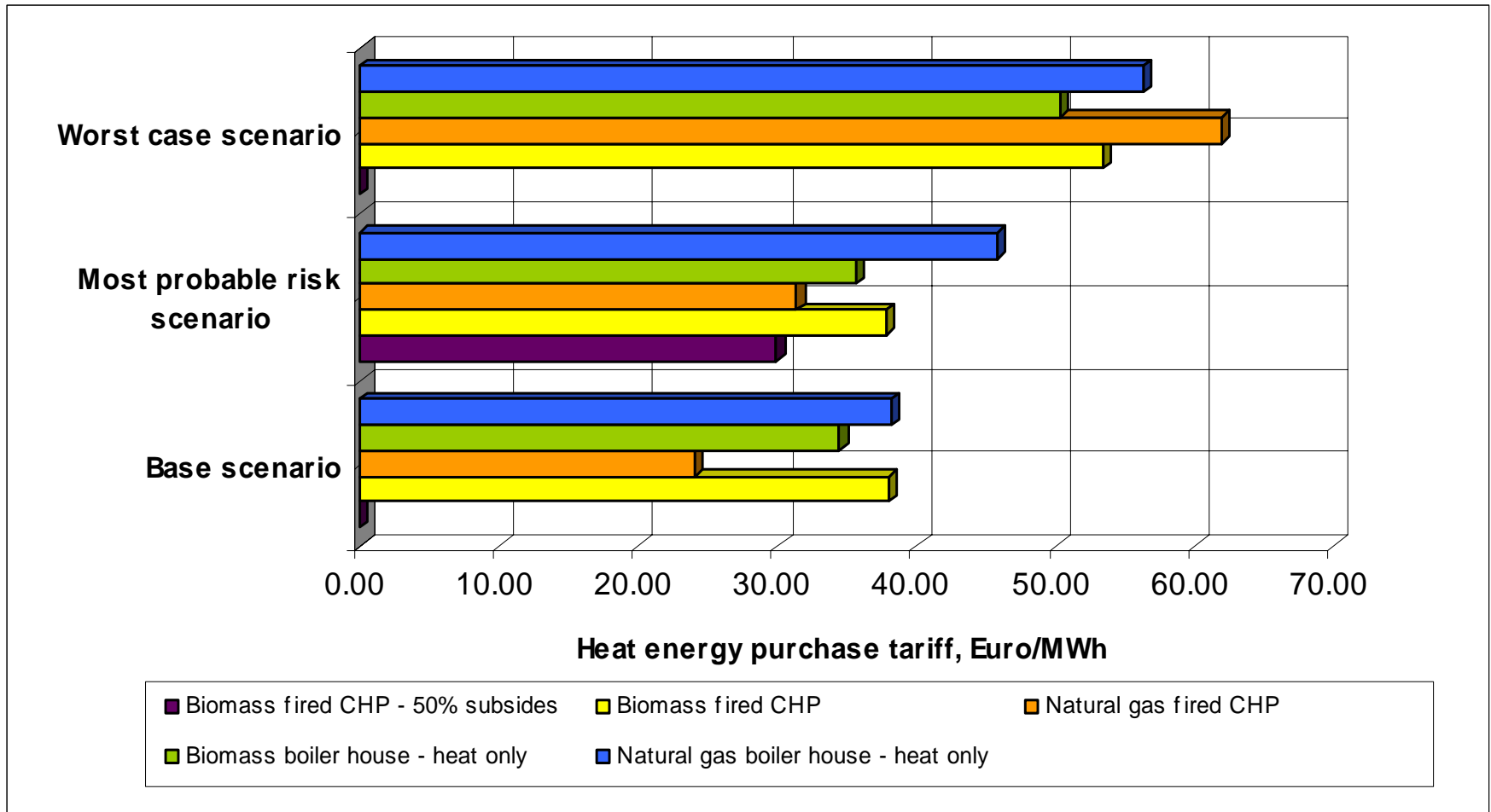


Heat energy tariffs

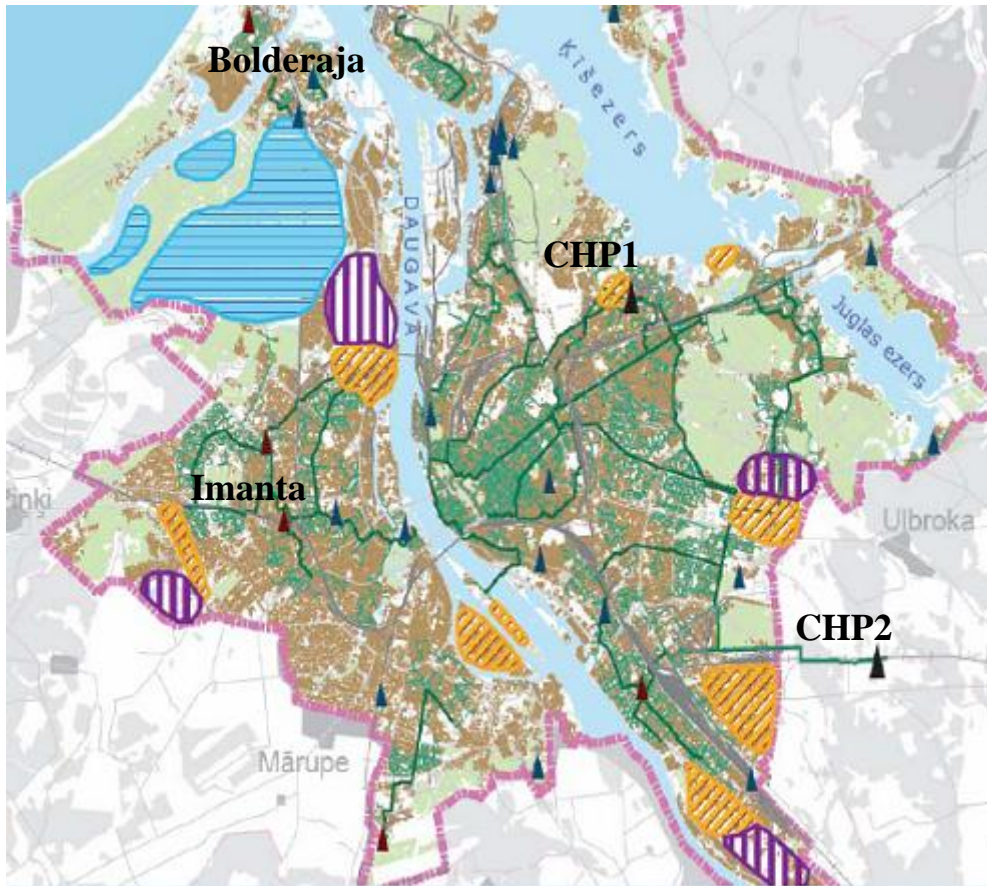
Approved heat tariffs in Latvian cities, October 2009 (natural gas price 185 Euro/1000m³)



Possible development in Salaspils



Riga Municipality



- DH company: SIA “Rigas Siltums”
- District heating supply – 72% of total heat supply, of which:
 - 70% purchased from Latvenergo utility company (CHP1 and CHP2)
 - 30% generated by Rigas Siltums own plants
- Cogeneration supplies more than 90% of heat demand
- Losses in the grid are less than 13%

[Source: REA]

Development of Latvian energy sector

Investments in:

- **Natural gas power station**

- 400 MW + 400 MW + ...

or

- **Coal power station**

- 400 MW

or

- **Nuclear power station**

- ???

Investments in:

- **Energy efficiency**

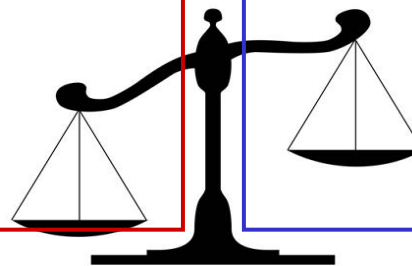
- **Development of renewable energy resources:**

- **Biomass cogeneration**

- 120MWe + 5 cities*50MWe

- **Wind energy 1000MWe**

- **Replacement of natural gas installations in DH and de-centralized systems**



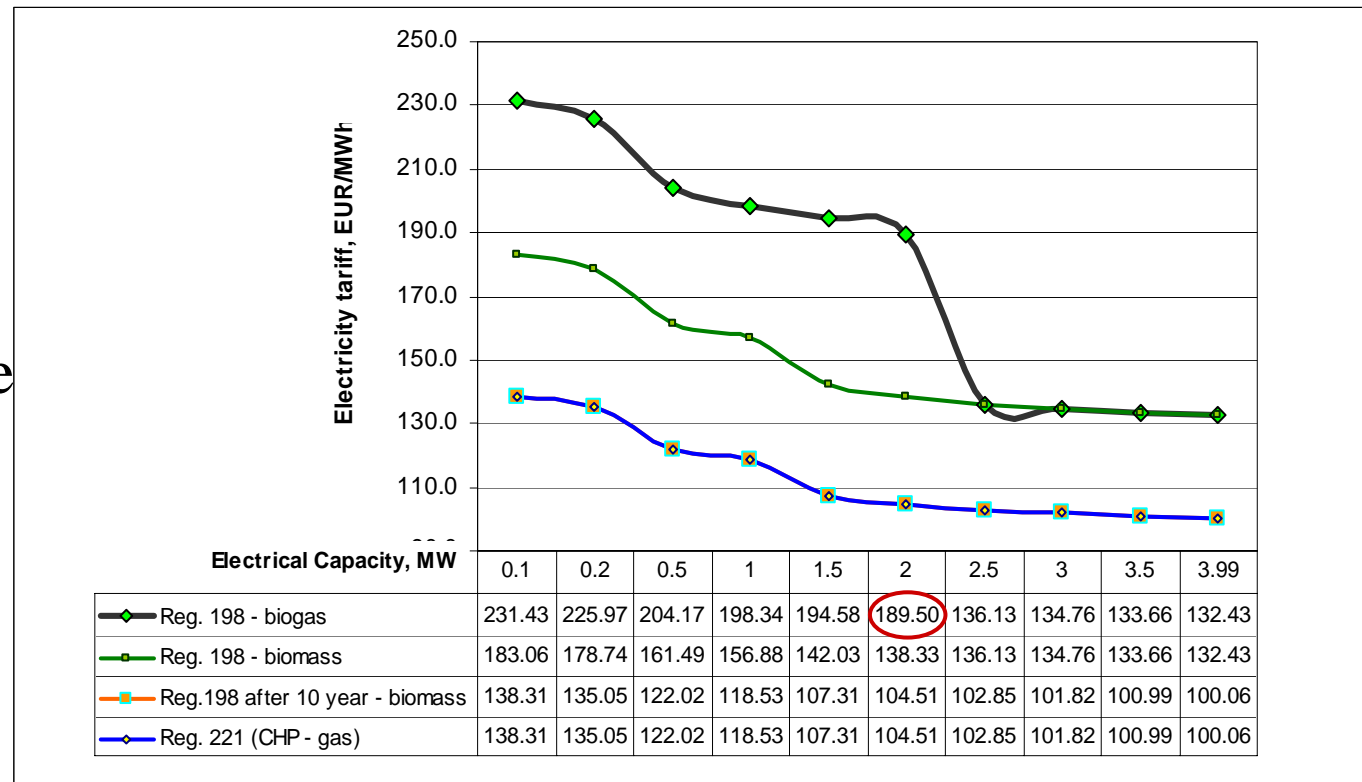
Economical considerations (1)

- In Riga heat load for cogeneration is already covered (enough CHP1)
- Costs for CHP2 -1 step
 - 2010 fuel costs 64 Euro/MWhe + 121Euro/MWh= 185Euro/MWhe + x Euro/MWh
- Costs for CHP2 -2 step
 - 2012 fuel costs 78Euro/MWhe + 121 Euro/MWh= 199Euro/MWhe + x Ls/MWh

Economical considerations (2)

- Today for RES – Electricity purchase tariffs are higher than 185 Euro/MWhe only for installed with capacity less than 2 MWe using biogas

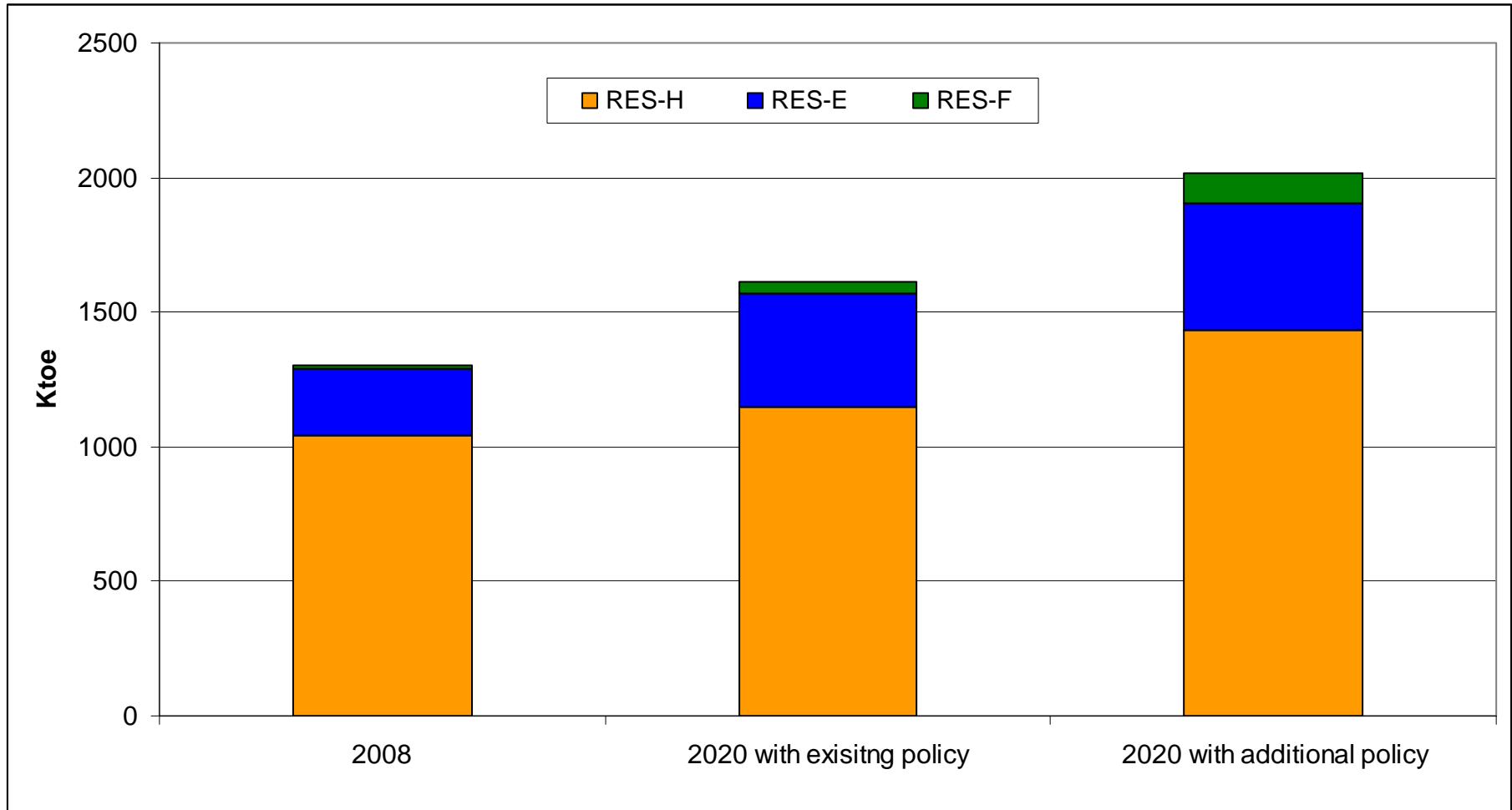
- Example.
Purchase tariffs for 2 MWe – biogas 189,5Euro/MWhe



Comparison of electricity purchase tariffs

- Large natural gas power stations has uppermost support in Latvia > 185Euro/MWh
- Larger natural gas power stations 400 MWe has higher support than smaller scale cogeneration (for example 4MW)
- RES –E from biomass power station has less support < 185 Euro/MWh than large natural gas power station

Influence of RES Policy



[Source: Ministry of Economy, December 2009]

EU target possible is to reach if

- to change state **energy policy**
- to increase **energy efficiency**
- to increase share of
 - **biomass** in electricity and heat energy production
 - **wind** in electricity production
- to **support** only efficient renewable energy resources (no support for fossil fuel)
- to **review** the feed-in tariff system and 3rd party access to district heating networks
- to start **solar** energy use
- to renew small scale **hydropower** stations



Thank you!

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