Good Practice in Metering and Billing

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REDUCE, RECYCLE, REPLACE: DOUBLING DHC NOW!

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The EHP task force on the topic

The members of the task force are:

- Peter Dahl (Chair)
- Stefan Orita (Co-Chair)
- Mirja Tiitinen
- Mette Hansen
- Adolf Punz - Ulrike Leopold
- Benny Moeller Thomsen
- László Vágó
- Hossein Vaezi-Nejad - Benoit Jourdan

The secretary of the group is Johannes Jungbauer, EHP

Why billing/metering matters for District Heating providers?

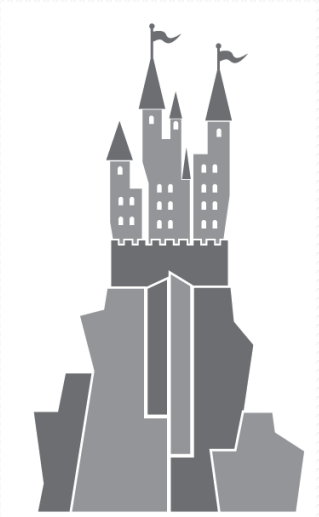
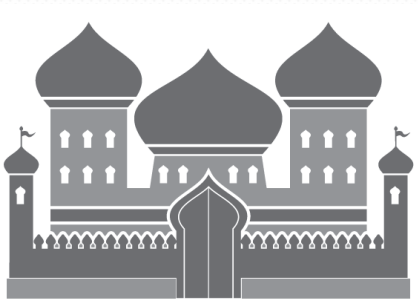
- Bill is the main communication tool between the District Heating provider and its customers
- Business card to customer
- Correct metering important for the entire system efficiency
- It is also the heart of the business, i.e. financial transaction

Correct metering is the prerequisite for correct billing and therefore important for both, provider and customer

Why billing/metering matters for customers?

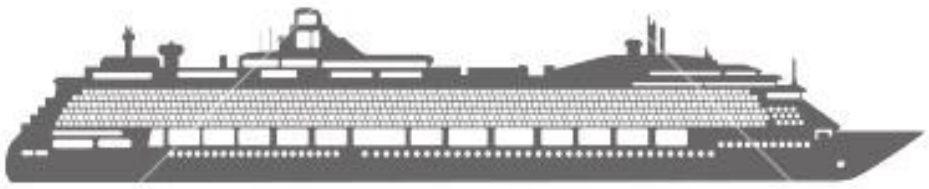
- Main instrument for consumers /citizens to understand how much they pay and consume
- Tool to make consumers /citizens aware of consumption which can lead to reductions
- Trust – the customer has to know that it is a fair amount that he or she pays.

Who are our customers?

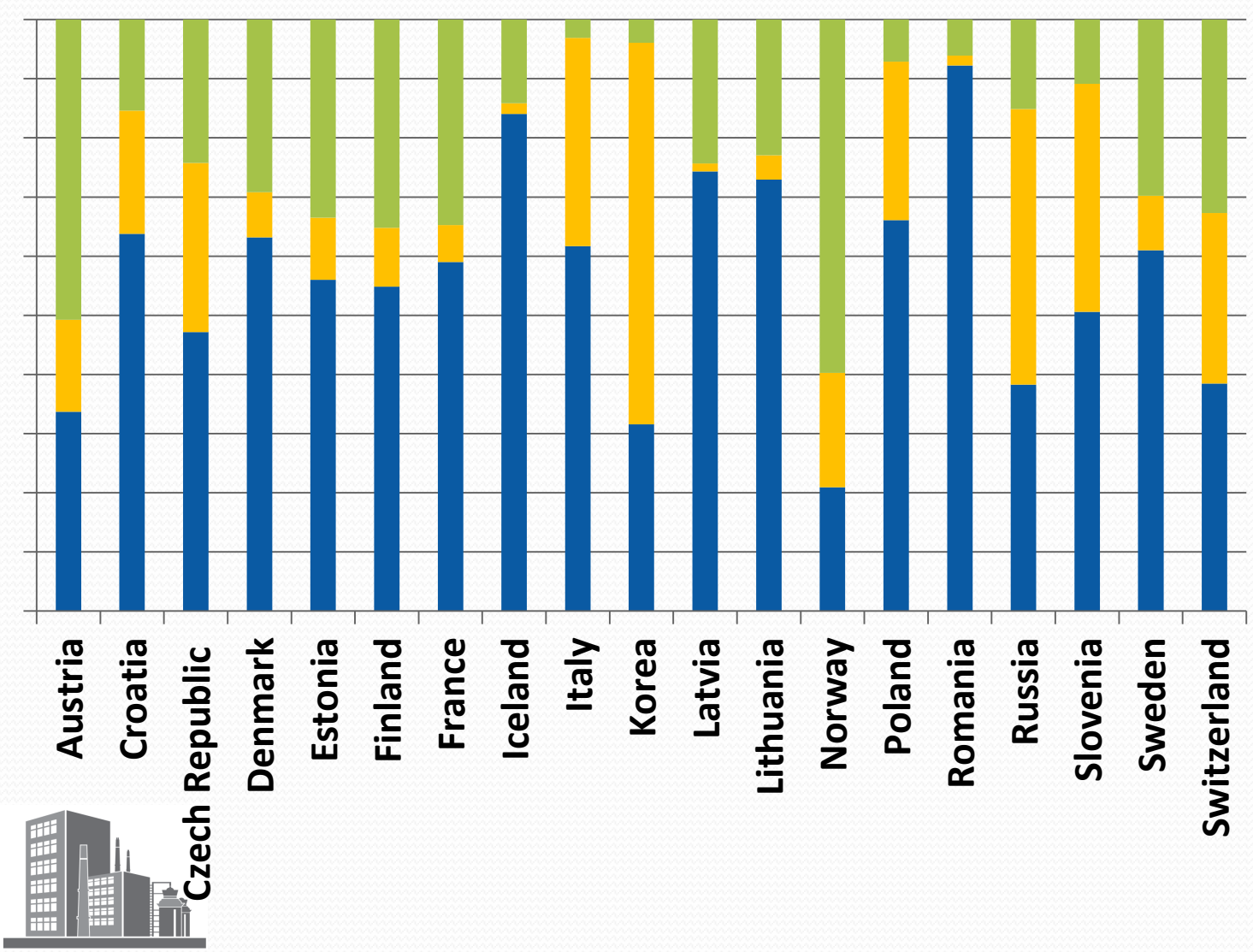








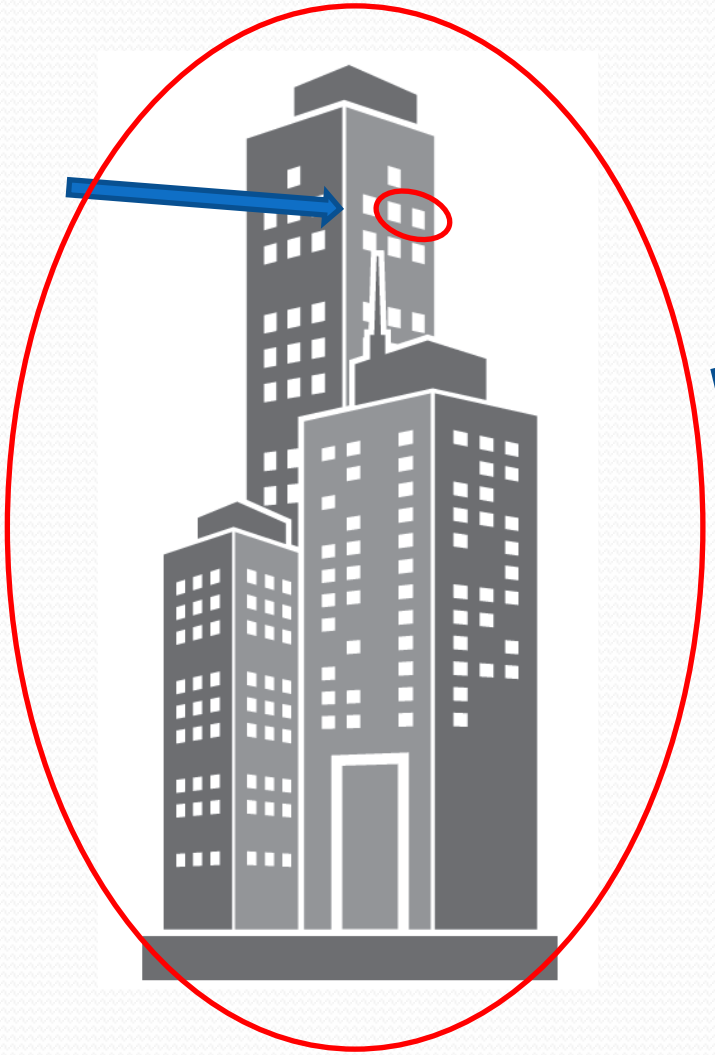



Share of District Heat customers 2009



Customer not always Consumer

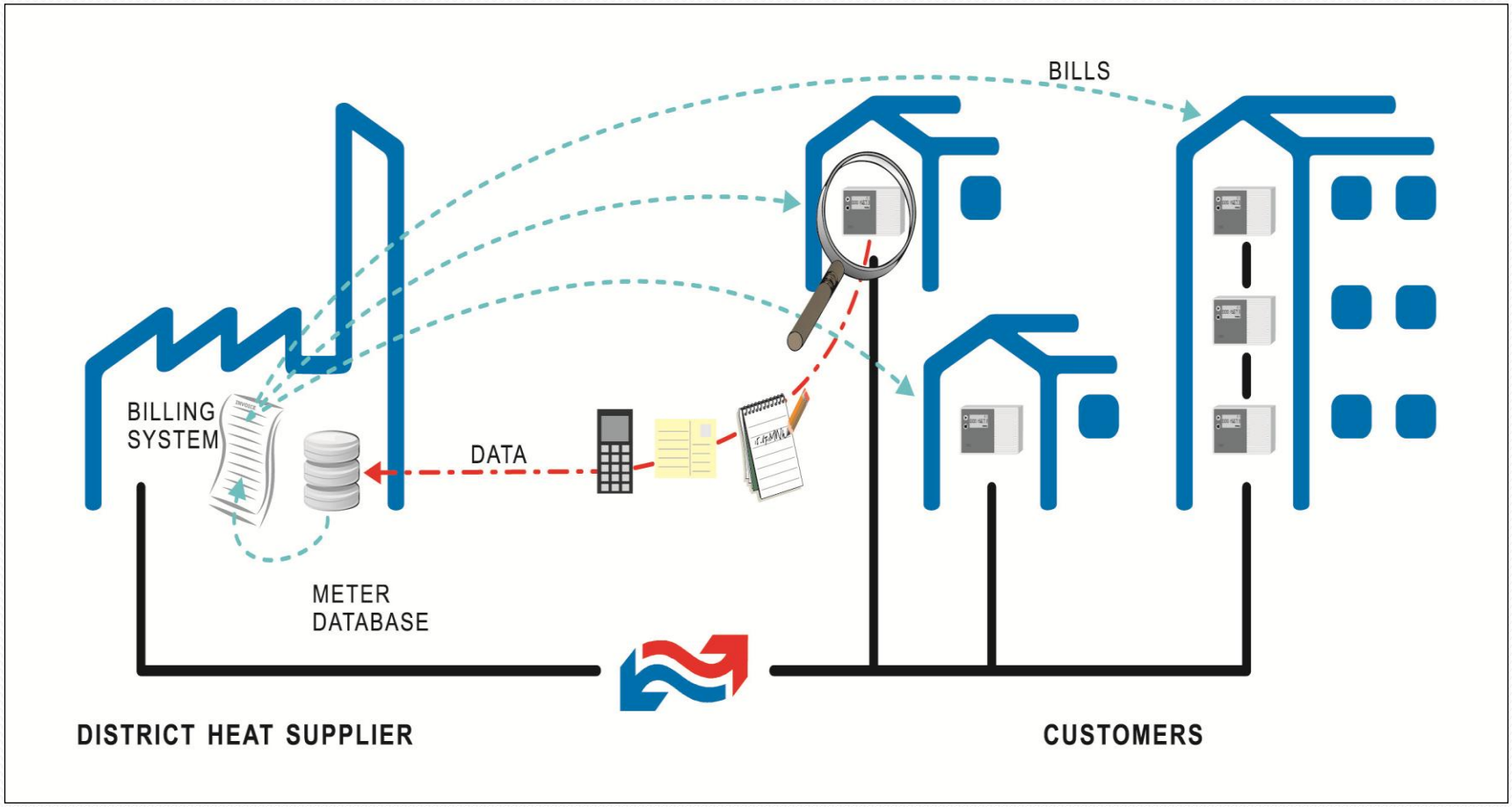
Tenant or owner of single apartment



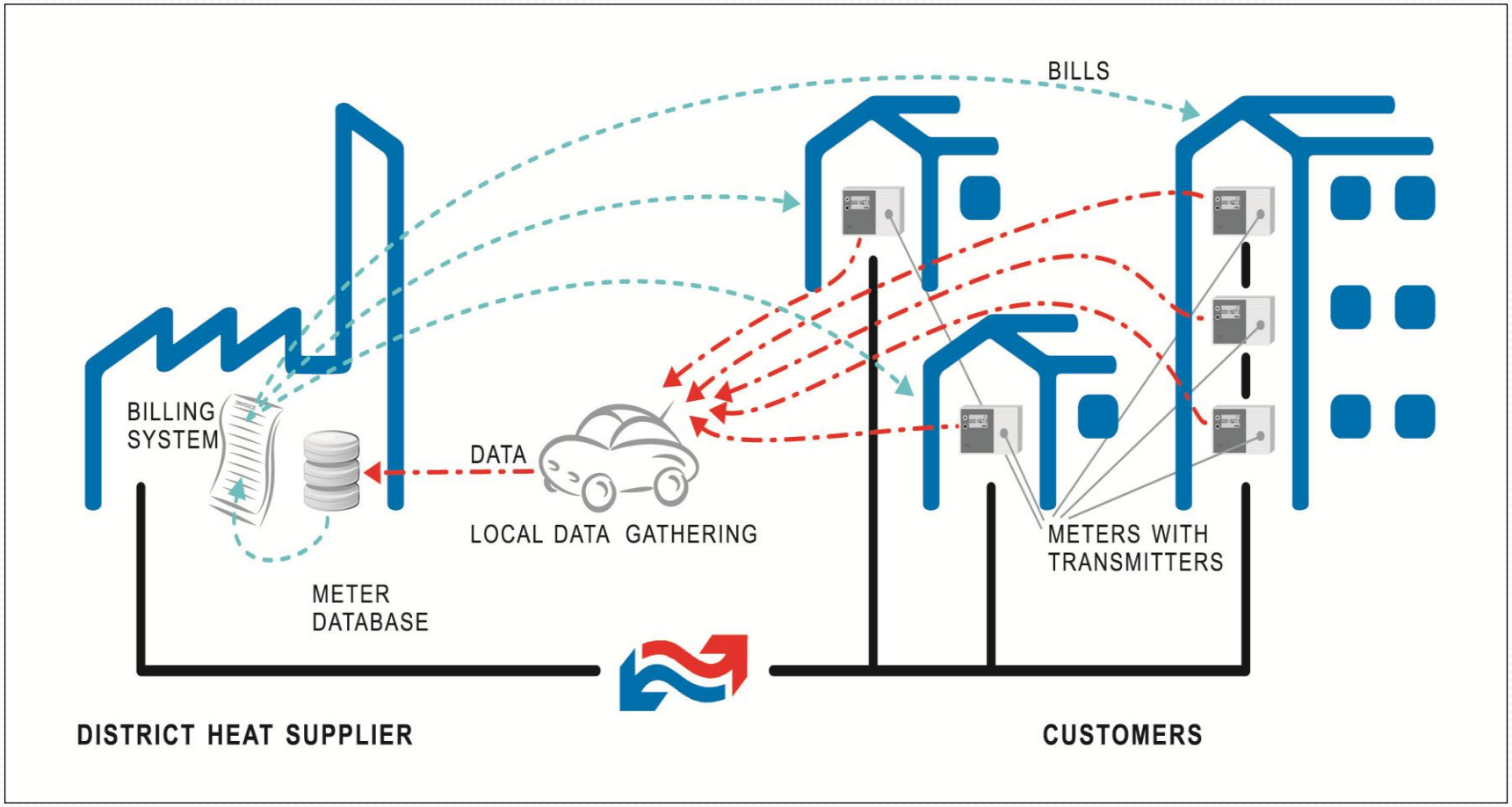
Building owner, house cooperative etc.

Different customers - different requirements

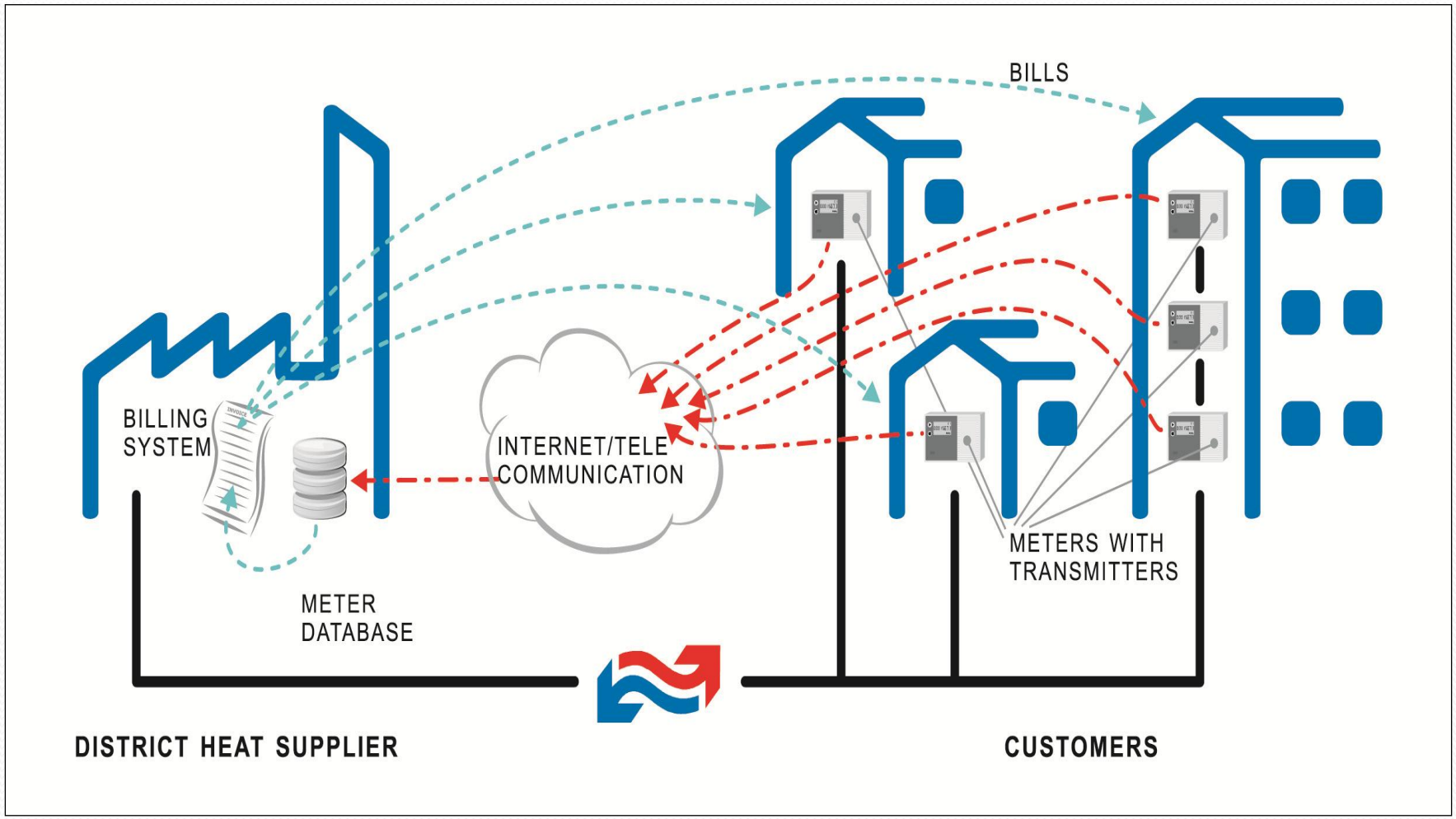
Different ways of metering - Manually



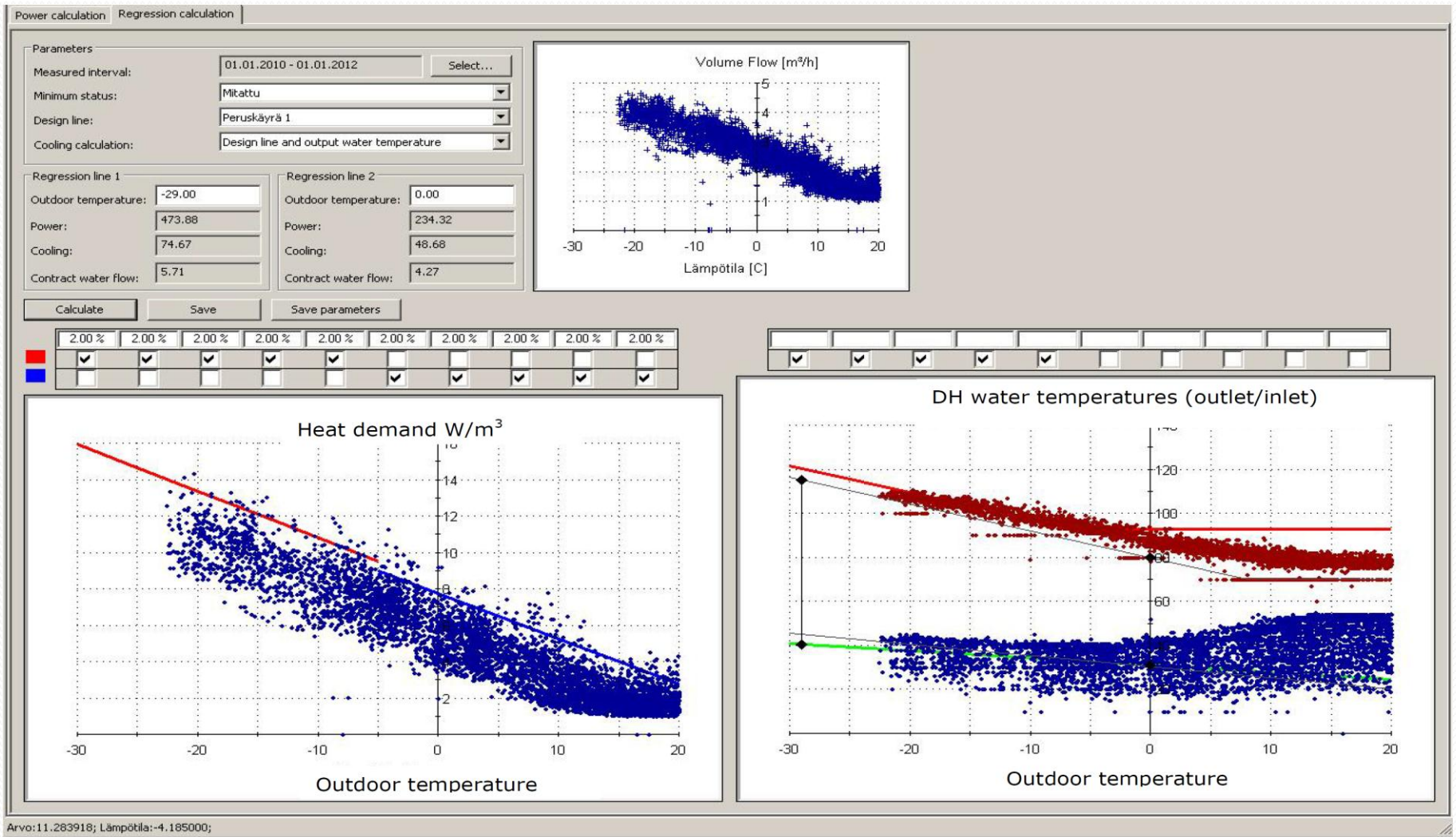
Different ways of metering - Remotely



Different ways of metering - Automatic



Detailed consumption report



What is good practice in metering?

- Good practice in the sense of metering that is beneficiary for both company and customer is also often dependent on the national legislation.
- Balance between the cost and benefits of advanced metering
- From a technical point of view there are today a wide variety of different ways to meter District Heating.
- The variety and complexity seems to be associated with reading the measurements and gathering the data.

Budget example

- Simple
- Inexpensive
- Effective

Name Address	Customer identification number: ..... Address of consumption: ..... Date: .....

Budget for meter reading 2010-2011

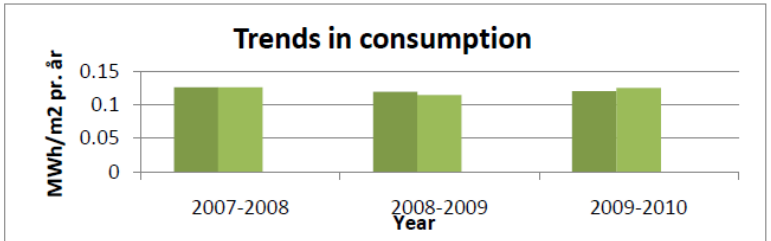
This table shows the expected consumption of heat per month next year.

At the end of April 2010 (30. April 2010) your meter reading was 96,345 MWh.

Budget for meter reading				
Month	**%**	**Expected consumption**	**Expected meter reading** (ultimo month)	**Actual meter reading**
May	4,0	0,681	97,026	
June	3,0	0,511	97,537	
July	3,0	0,511	98,048	
August	3,0	0,511	98,559	
September	4,0	0,681	99,24	
October	9,0	1,533	100,773	
November	11,0	1,873	102,646	
December	13,0	2,214	104,86	
January	15,0	2,554	107,414	
February	13,0	2,214	109,628	
March	12,0	2,043	111,671	
April	10,0	1,703	113,374	
Total	**100,0**	**17,029**		

This building is registered as being 130 m^2

Year	2007-2008	2008-2009	2009-2010
Heat consumption	16,904	15,914	16,065
Consumption MWh/m^2	0,126	0,119	0,120
Average consumption for similar houses (MWh/m^2)	0,126	0,114	0,125



Consumption Report

- Graphic
- Simple
- Effective

District Heating Company

DISTRICT HEATING CONSUMPTION REPORT

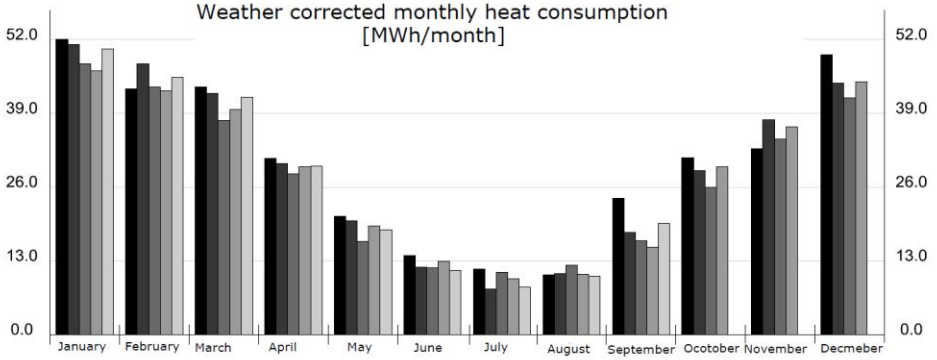
Identification code of the customer: xxxxxxx - Asunto Oy NN
Address Street, number, city

Building information:		**Type:** Apartment building	
Heated floor area:	2280 m²	Number of flats:	36
Heated building volume:	9250 m³	Number of inhabitants:	64
Total floor area:	2800 m²	Number of offices:	0
Total building volume:	9250 m³	Number of employees	0
		Number of buildings:	1

District heating fees, year 2009			
Fixed fee (VAT 22%)	777,12 EUR	Average price (VAT 22%)	60,73 EUR/MWh
Energy fee (VAT 22%)	16489,42 EUR		
Fees, total (VAT 22%)	20266,54 EUR		

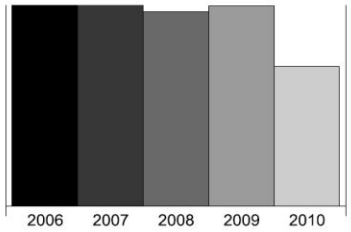
Energy consumption, year 2009:			
Weather corrected specific heat consumption:	36,5 kWh/m³	Reference value	42,4 kWh/m³
Specific heat consumption:	36,1 kWh/m³		

Weather corrected monthly heat consumption [MWh/month]



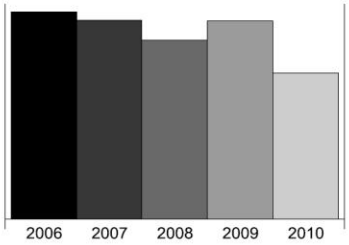
2006	52.0	43.3	43.7	31.1	20.8	13.9	11.5	10.5	24.0	31.2	32.8	49.3	2006
2007	51.1	47.7	42.5	30.2	20.1	11.9	8.0	10.8	18.0	28.9	37.9	44.3	2007
2008	47.7	43.7	37.8	28.3	16.5	11.8	11.0	12.3	16.6	25.9	34.5	41.7	2008
2009	46.5	43.0	39.7	29.6	19.1	12.9	9.8	10.6	15.4	29.6	36.6	44.6	2009
2010	50.4	45.3	41.8	29.7	18.5	11.4	8.4	10.3	19.6				2010

Weather corrected heat consumption [MWh/year]



364.3	351.5	327.8	337.5	235.4

Metered and billed heat consumption [MWh/year]



348.8	334.8	302.0	333.7	246.3

What is good practice in billing?

• First and foremost the bill needs to be **easy** to read and understand for the customer. It is, however, not so easy to obtain simplicity.

•Billing is one channel through which the District Heating company can communicate with the customers.

•Billing is often the start point for a dialogue between the District Heating company and the customer. The dialogue is important and must be treated with respect. It is a clear advantage if there is a structured system for the dialogue.

Good practice examples:

- Reko System of Sweden
- Debrecen Customer information campaign

Customer Communication

- Needs to bee easy to access without loosing informational value
- Metered information can be used in several ways, not only for billing purposes
- there is a need for pre-emptive information
- Feedback is necessary

Customer complaint handling

- Customers need a place to turn to –authorities and legislation often require it
- There are different way of handling complaints –voluntary systems that are national or international has proven to be successful.

Tariff structure

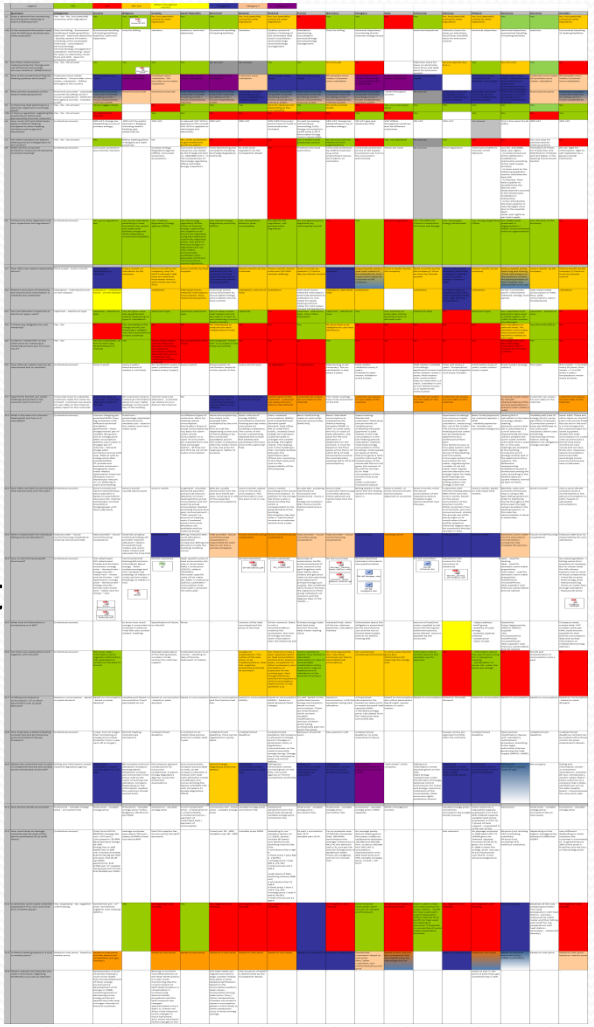
Fixed …….%?
+Flexible……%?
+Flow fee……%?
+Capacity……%?
+Connection……%?

Total energy bill 100%

- Can provide incentive for supplier and consumer to save energy
- Benefit to save energy at the right moment at the right place
- Certain tariffs require installation of certain metering equipment

Summary I/II

- Customers are different (either individual or collective or both)
- Immense diversity throughout Europe
- Regulation on District Heating differs
- Implementation of European legislation on different stages (e.g. Directive 2006/32/EC)
- Six different tariff items are used (fixed, flexible, return temp., capacity, seasonal, connection)



Summary II/II

- Improvement potential for billing structure and provided information
- Complaint handling crucial for customer satisfaction
- Advanced reading adds value to District Heating (both for customer and DH provider)
- Installed meter technology has impact on possible billing and metering services
- Balance between benefits and cost of metering services important
- Need to further look into smart metering in the District Heating sector

Not official – may be subject to change

Outlook

To come from Brussels

Directive on energy efficiency and amending and subsequently repealing Directives 2004/8/EC (CHP) and 2006/32/EC (energy services)

Article 6

1. Member States shall ensure that consumers of electricity, natural gas, district heating or cooling and district-supplied domestic hot water are provided with individual meters that accurately reflect their actual energy consumption and provide information on actual time of use. …

Not official – may be subject to change

2. In multi-apartment buildings, individual heat consumption meters shall be installed to measure the consumption of heat for each apartment. Where the building is supplied with heating from district heating, a heat meter shall also be installed at the building entry. Where the use of individual heat consumption meters is not technically feasible, individual heat cost allocators, in accordance with the specifications contained in Annex III, shall be used for measuring heat consumption at each radiator.

Member States shall introduce rules on cost allocation of heat consumption in multiapartment buildings supplied with centralised heat or cooling. Such rules shall include guidelines on correction factors to reflect building characteristics such as heat transfers between apartments.

Not official – may be subject to change

3. Member States shall introduce individual billing based on actual consumption in accordance with the minimum frequency set out in Annex III(2):

a) not later than 1 January 2014 for electricity and natural gas; and
b) not later than 1 January 2015 for hot water and centralised heat.
Member States shall ensure that billing by energy distributors, distribution system operators and retail energy sales companies is based on actual energy consumption. Appropriate information shall be made available with the bill to provide energy consumers with a comprehensive account of current energy costs.

Thank you very much for your attention!

EUROHEAT & POWER

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