Overview on DHC pricing and regulations in Europe-
Challenges and need of development

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Our geographical presence today

Nr 3  Power generation

Nr 1  Heat

Nr 1  Distribution

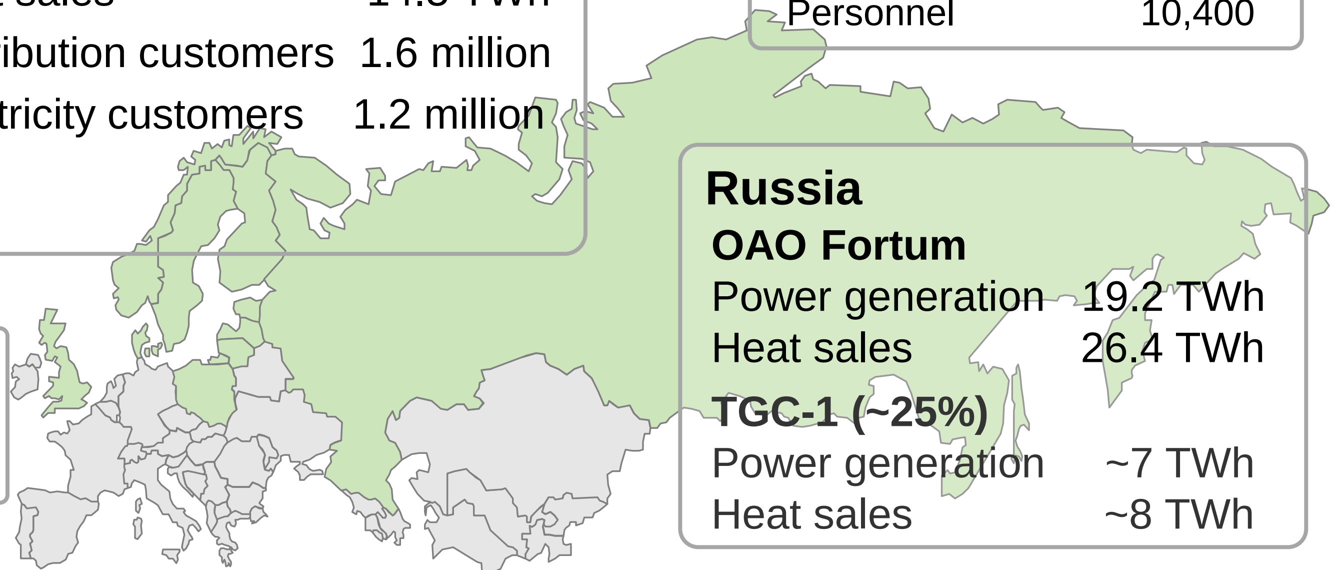
Nr 2  Electricity sales

Nordic countries

Power generation	51.6 TWh
Heat sales	14.5 TWh
Distribution customers	1.6 million
Electricity customers	1.2 million

Key figures 2012

Sales	EUR 6.2 bn
Operating profit	EUR 1.9 bn
Balance sheet	EUR 25 bn
Personnel	10,400



Russia

OAO Fortum

Power generation	19.2 TWh
Heat sales	26.4 TWh

TGC-1 (~25%)

Power generation	~7 TWh
Heat sales	~8 TWh

Great Britain

Power generation	1.1 TWh
Heat sales	1.8 TWh

Poland

Power generation	0.8 TWh
Heat sales	4.3 TWh

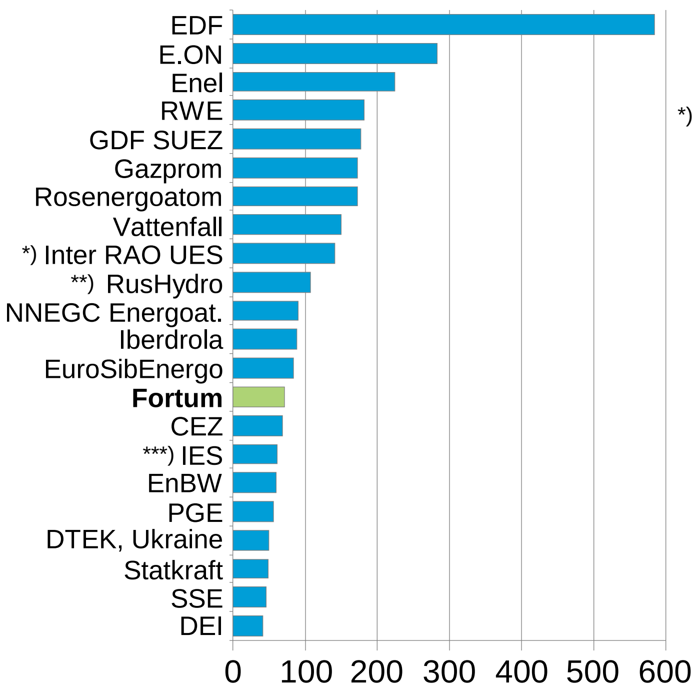
Baltic countries

Power generation	0.4 TWh
Heat sales	0.9 TWh

Fortum mid-sized European power generation player; major producer in global heat

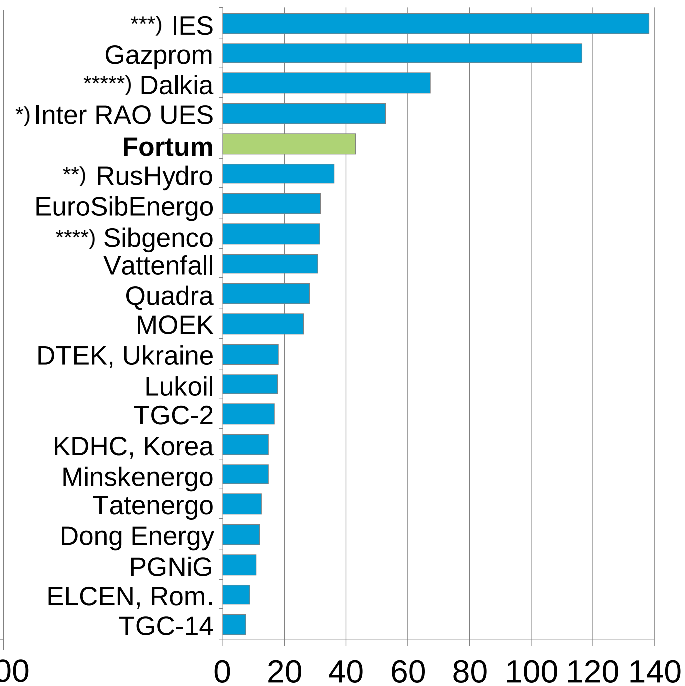
Power generation

Largest producers in Europe and Russia, 2011
TWh



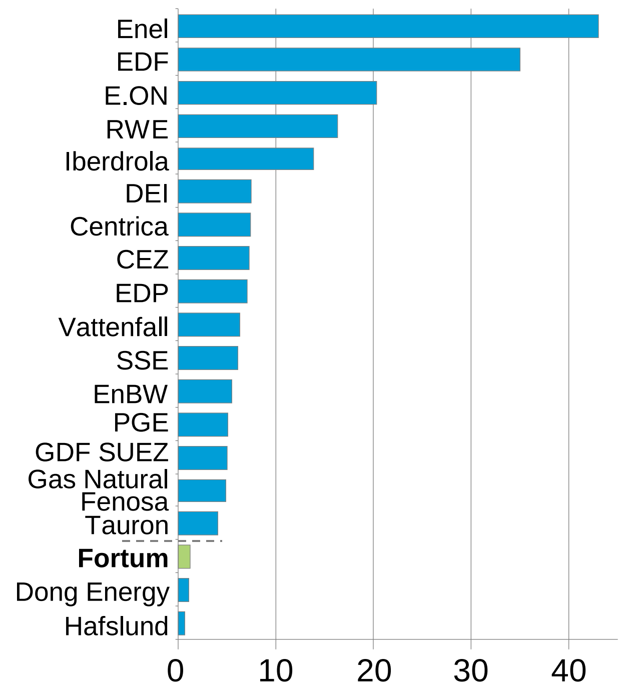
Heat production

Largest global producers, 2011
TWh



Customers

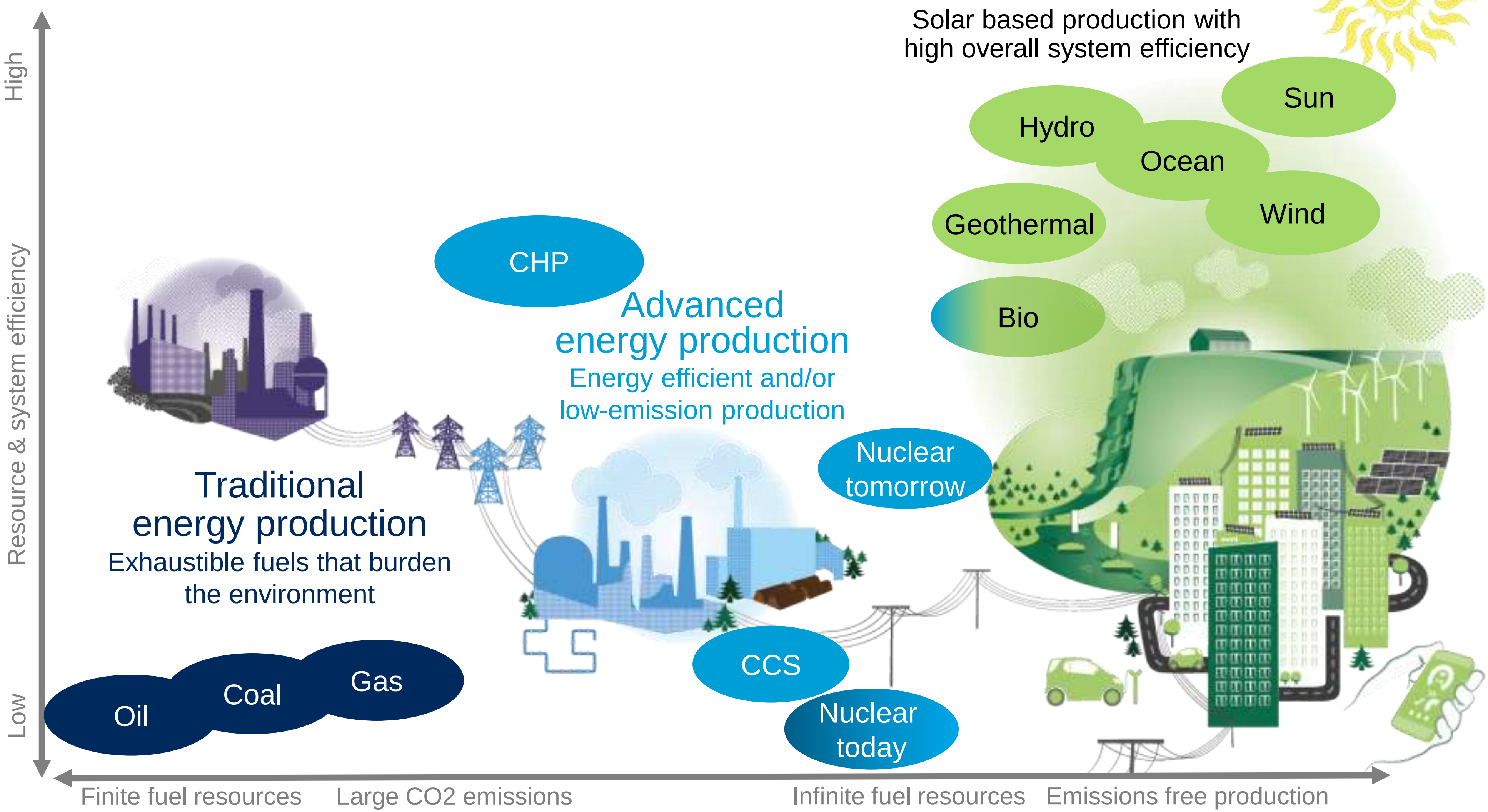
Electricity customers in EU, 2011
millions



* incl. Bashkirenergo, ** incl. RAO ES East, *** incl. TGC-5, TGC-6, TGC-7, TGC-9, **** incl. TGC-12, TGC-13, ***** incl. energy services
Source: Company information, Fortum analyses, 2011 figures pro forma, heat production of Beijing DH not available.

Transition towards Solar Economy

Solar Economy



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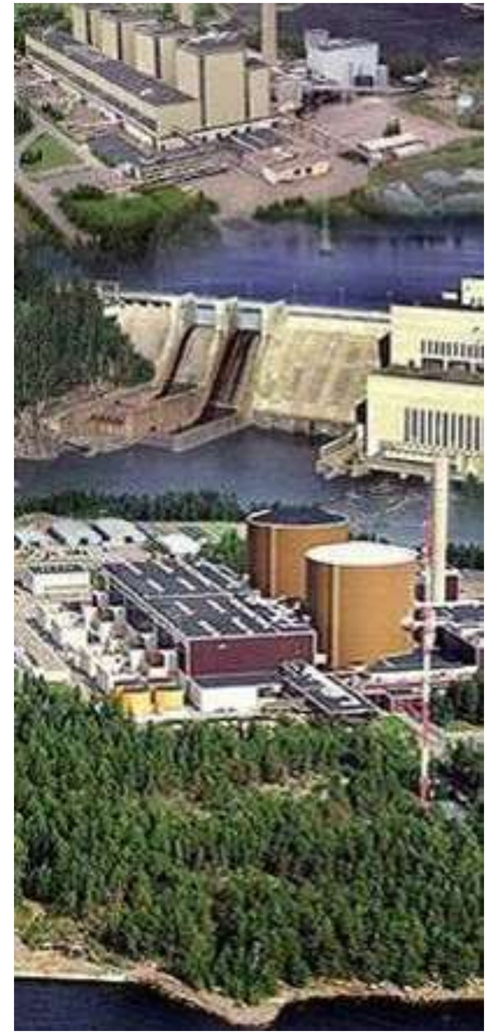
Fortum's investment programme – Nordic region, Poland and Baltic countries

Project	Electricity, MW	Heat, MW	Commissioned
Olkiluoto 3, Finland	400		
Swedish nuclear upgrades	290		
Blaiken, Sweden, wind power	30		
Refurbishing of hydro power	10		annually
Brista, Sweden *(waste CHP)*	20	57	Q4 2013
Klaipeda, Lithuania *(waste CHP)*	20	60	Q1 2013
Järvenpää, Finland *(biomass CHP)*	23	63	Q2 2013
Jelgava, Latvia *(biomass CHP)*	23	45	Q3 2013
Värtan, Sweden *(biomass CHP)*	130	280	2016
Total	**~950**	**~500**	

Additional electricity capacity around 950 MW
100% CO_2-free



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A challenge for an investor: A continuous development of the legislation of district heating/CHP

	1990-1999	2000-2010	2011- 2012	2013…
Sweden		District Heating Act 2009	Third Party Access (TPA) consultation concluded	Heat price adjustment mechanism Potential for industrial waste heat
Finland	Act on competition restriction 1992 Electricity Market Act 1995		DH sector review by Finnish Competition Authorities	
Norway	Energy Act 1990			
Estonia		District Heating Act 2003		Considerations on renewing heat legislation
Latwia		Energy Market Law 2004		Considerations on drafting specific heat law
Lithuania		Law on Heat Sector 2003	DH price formation methodology revision	
Poland	Energy Law Act 1997	Serious of amendments into existing energy law (heat reference price from CHP, return on capital)	New Energy, Gas and RES Laws drafted Related ordinances	
Russia		Law on Heat Supply 2010	Over 30 heat market related secondary acts under preparation	

Heat regulation regimes vary across Europe – transition towards competitive heat markets & pricing is needed

Regime categories

DH company sets competitive prices while authorities monitor pricing based on competition law

- **Sweden, Finland**, Denmark, Germany, Austria, Belgium, France and UK

Alternative-based heat pricing as main pricing principle to promote DH against other heating solutions

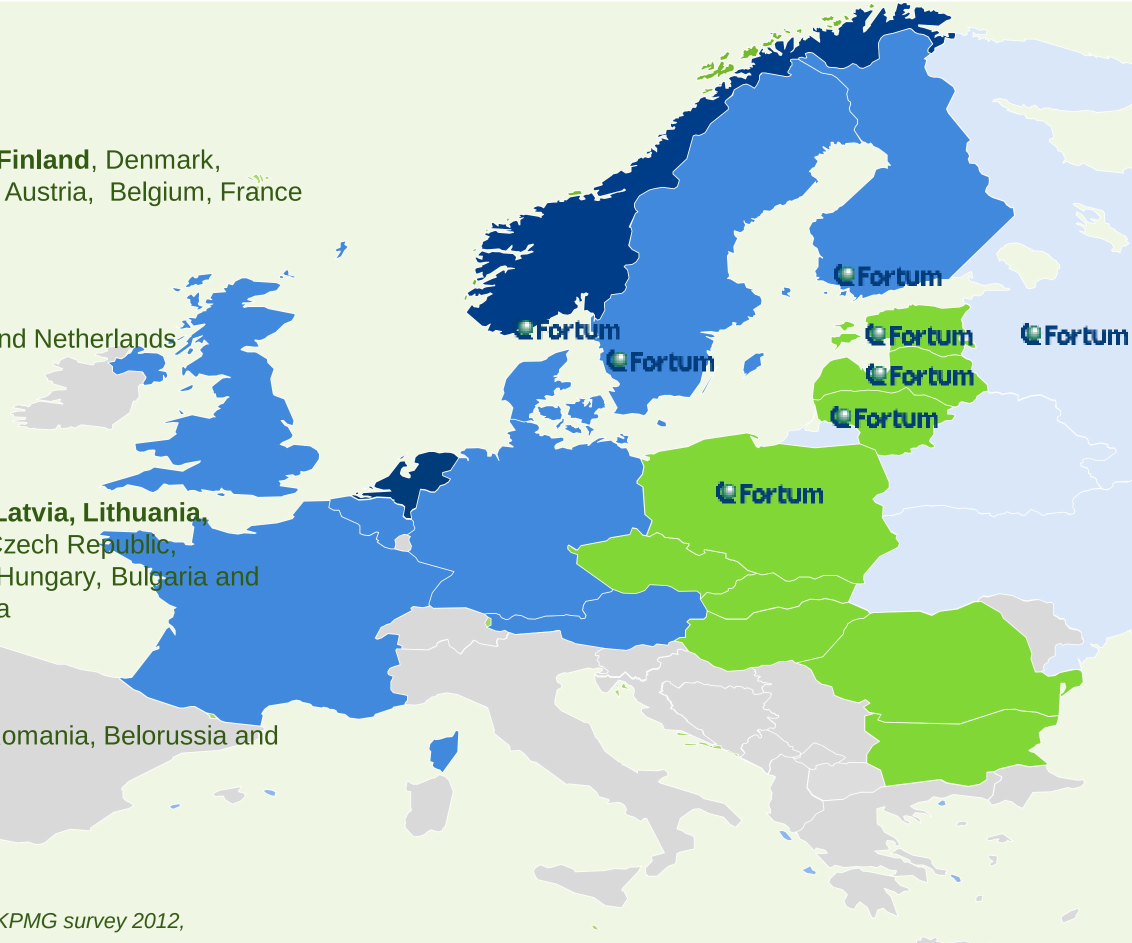
- **Norway** and Netherlands

Heavy-touch ex-ante price control based on established methodology and approval of autonomous regulator

- **Estonia, Latvia, Lithuania, Poland**, Czech Republic, Slovakia, Hungary, Bulgaria and Macedonia

Heavy-touch ex-ante price control based on multi-level approval by state, regional and local authorities

- **Russia**, Romania, Belorussia and Ukraine



Source: Fortum analysis based on benchmarking selected DH/CHP markets in Europe. KPMG survey 2012,

General situation for many countries current heat market situation

Affordability of district heating has deteriorated

- Economical recession,
- Price peak of natural gas,
- Lack of incentives for companies to invest in new, efficient and competitive production capacity.

The situation has created a public need to solve the situation

Intensive public & political discussion,
Strong focus on heat production
Less focus set on heating market and competitiveness with alternatives.

How can the heat market be developed to benefit all stakeholders?

Transfer focus to the customer and incentivise companies to improve

Need of development of regulation of the heat sector

Transfer focus to the customer	Incentivise companies to improve
• Today's heavy touch ex-ante regulation has clearly not had any positive impact on pricing in international comparison	• Companies should have the target to be competitive against alternative heating solutions
• Affordability of heat should partly be solved through energy efficiency measures	• Proper incentives for new investments into production and distribution
• Main target for pricing should be to keep it at (or return it to?) a competitive level	• Liberalise heat production market to be based on commercial merits and negotiations between distribution company and producer
• The customers should be empowered to take bigger responsibility of their heating	• Performance improvement to be shared by both customers and companies

The future of the District Heating –needs a "regulation" that can strengthen the long-term system optimization

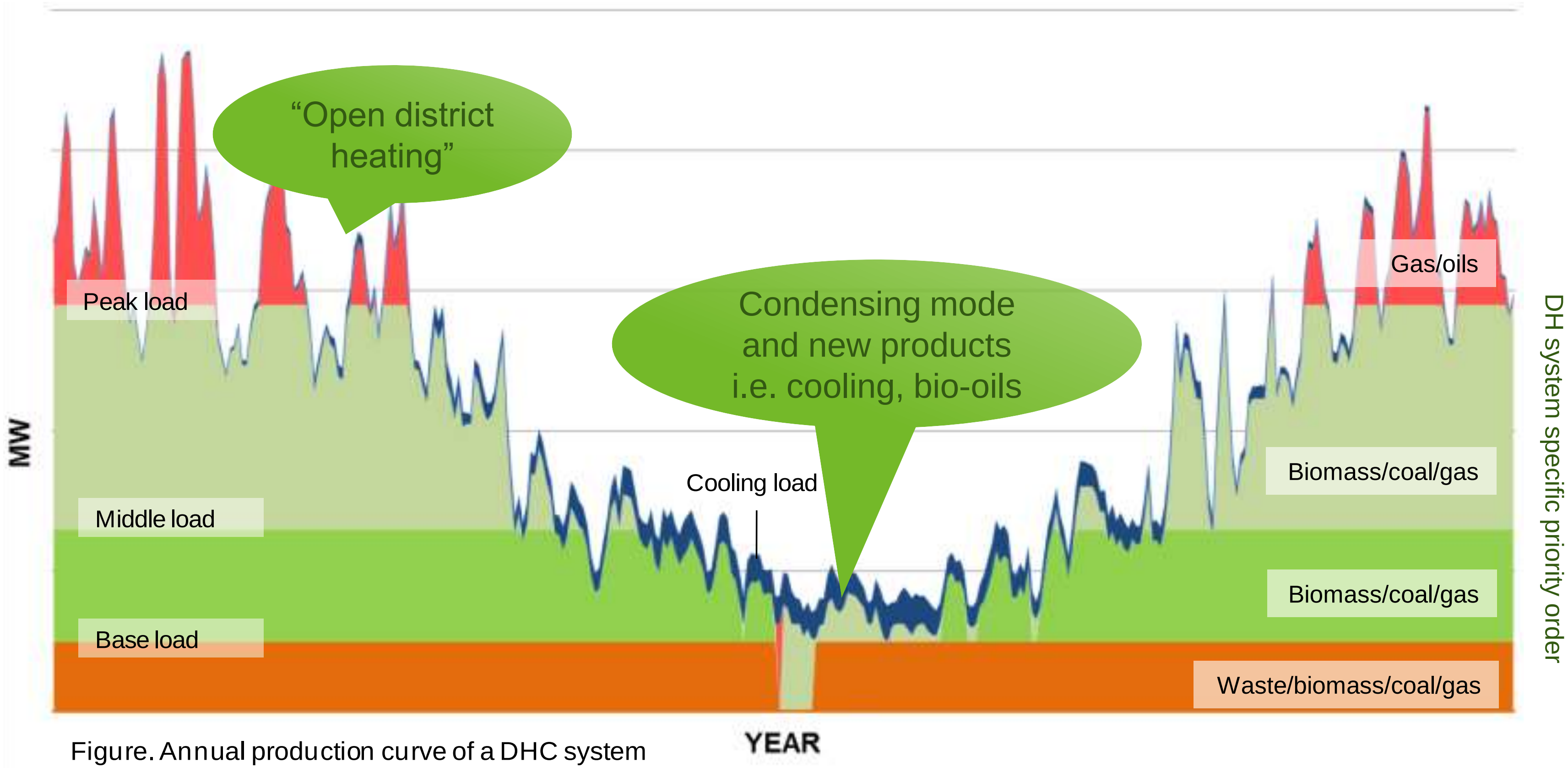


Figure. Annual production curve of a DHC system

- **Optimizing the cost of peak heat load through heat trading between customers having own capacity and DH operator – Fortum is running a pilot program on ''Open DH system" in Stockholm, Sweden**
- **Improving CHP capacity utilization – Fortum will start industrial scale bio-oil production in Joensuu CHP plant, Finland**

Well-functioning heat market design and pricing are key corner stones for value creating CHP growth strategy

Effective competition

Fair and effective competition in local heat markets between space heating alternatives.

Competitive pricing

Competitive and value-added DH through alternative-based heat pricing.

DH system optimization

Clear **responsibility and incentive mechanisms** for long-term DH system optimization.

Attractive return allowance

Attractive, risk-adjusted returns on refurbishment of privatized DH assets and on green field CHP investments.

Incentives for benchmark performance

World-class DHC\CHP operators can earn **higher than average returns.**

Thank you!

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