

Overview of National DHC Market

Country

France

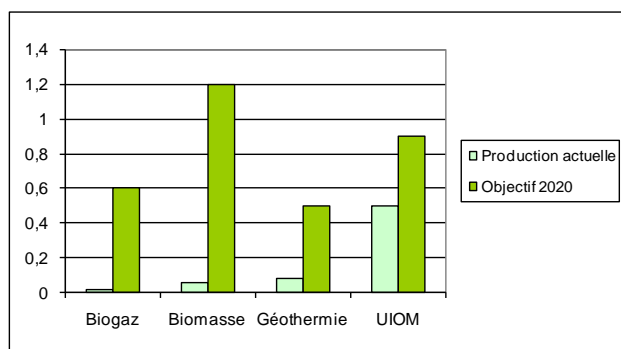
Summary of the National DH market

414 district heating systems (DHS) and 13 district cooling systems (DCS) are listed.

DHS currently represents only 5% or so of the heat delivered in France. However, national policy makers have now acknowledged that DHC will be decisive in massively developing renewable and recovery energy (R&RE) sources use to the extent planned, either in European or in national regulation.

By 2020, DH in France is due to reach an average of 50% of R&RE sources in their fuel mix (vs. 29% in 2008); they will also have to double (or triple) the household-equivalents that benefit from the heat they produce (2 millions household-equivalents and 3,200 km of network in 2008).

Objective	Figures	
Heat production from biomass through DHS	+ 1,1 Mtep	+ 12,8 TWh
Heat production from waste incineration and waste wood	+ 0,5 Mtep	+ 5,8 TWh
R&R heat to be mobilized through DHS	3,2 Mtep	37,2 TWh
- of which biomass	1,2 Mtep	13,9 TWh
- of which waste incineration and waste wood	0,9 Mtep	10,5 TWh
- of which biogas	0,6 Mtep	6,4 TWh
- of which deep geothermal	0,5 Mtep	5,8 TWh



Light green : current production
Bright green : 2020 target

The following figures and graphs give a precise overview of the French DH market in 2008.

Main characteristics	Unit	DHS	DCS	Total
Number of DH or C systems (networks)	Nb	414	13	427
Number of production plants	Nb	615	21	636
Total installed capacity	MW	17 119	620	17 739
Energy consumption	GWh	37 720	304	38 024
Energy consumption	Ktep*	3 244	26	3 270
Total capacity from other energy sources	MW	2 760	16	2 776
Total length of the networks	km	3 201	128	3 329
Number of sub-stations	Nb	23 240	841	24 081
Total capacity demand	MW	18 653	698	19 351
Total thermal energy deliveries	GWh	24 362	894	25 256
Number of housing equivalents	Nb	2 073 351	80 675	2 154 026
Annual turnover	K€ HT	1 432 204	100 170	1 532 374
Average subscription price in billing	%	35,9%	53,2%	37,0%
Average overall price (set + energy related)	€ HT	58,8	112,1	60,7

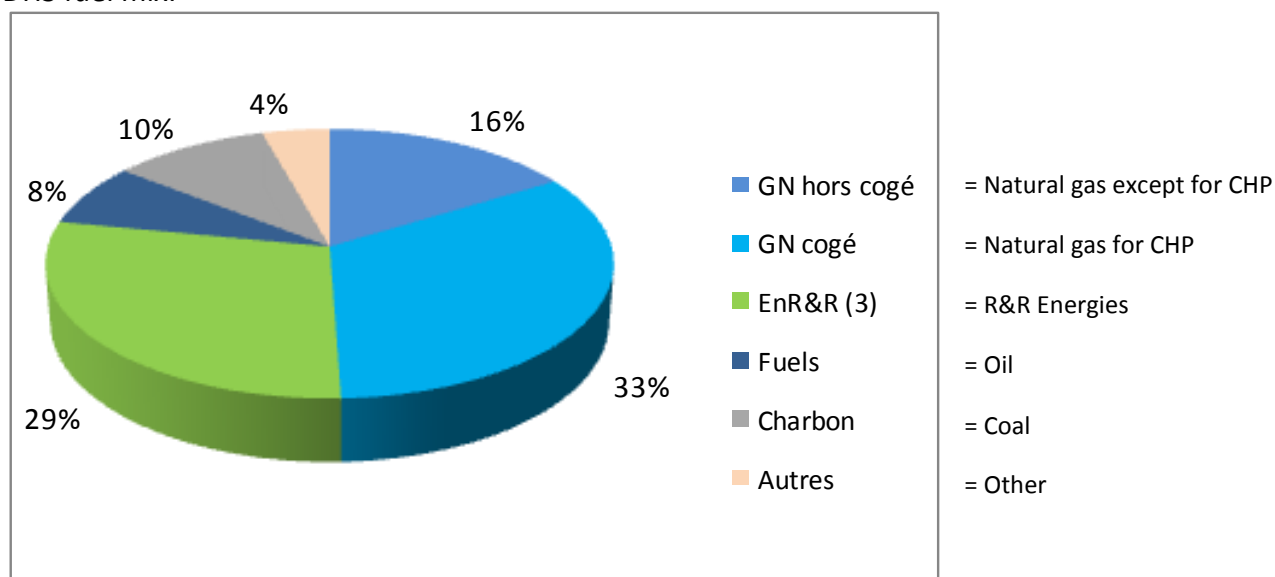
Operation modes in DHS	Nb of DHS		Energy deliveries	
	Nb	%	GWh	%
Public management	37	9%	595	2%
Public management with private maintenance contract	2	0%	1	0%
Delegation contract - Leasing	75	18%	4 846	20%
Delegation contract - Concession	150	36%	15 238	63%
Other - with private maintenance contract	134	32%	3 255	13%
Other - without private maintenance contract	16	4%	427	2%

Nber of energy sources used in DHS	In Nb of DHS		In energy deliveries	
	Nb	%	GWh	%
1 energy source	137	35%	3 383	14%
2 energy sources	173	44%	7 472	31%
3 energy sources	66	17%	4 995	21%
4 energy sources or more	19	5%	8 397	35%

Number of plants in DHS	In Nb of DHS		In energy deliveries	
	Nb	%	GWh	%
1 plant or less (external sources)	334	81%	12 568	52%
2 plants	39	9%	2 657	11%
3 plants	18	4%	1 339	6%
4 plants or more	20	5%	7 701	32%
1 ETS plant at least	200	49%	20 984	86%

DHS fuel mix		Consumed or purchased energies			Heat production	
		Purchase units	Input except CHP GWh	Input for CHP GWh	Quantity (GWh)	Share / Total (%)
Fossil fuels	Coal	447 858 tons	2 868	303	2 759	10%
	Heavy fuel	196 801 tons	2 137	85	1 939	7%
	Heating oil	13 375 m ³	128	4	115	0%
	Natural gas	25 633 654 MWh pcs	7 543	15 472	13 521	49%
R&R Energies	Biomass	267 097 tons	658	142	687	3%
	Biogas	0 MWh pcs	0	0	0	0%
	Recycled gas	195 128 MWh pcs	128	59	138	1%
	Industrial heat	329 945 MWh	330	so	330	1%
	Waste valorisation	5 807 801 MWh	5 808	so	5 808	21%
	Geothermal	869 284 MWh	869	so	869	3%
Other energies	Electric boiler	29 804 MWh e	30	so	30	0%
	Heating pump	7 540 MWh e	38	so	38	0%
	External CHP	253 034 MWh	253	so	253	1%
	External DHS	865 634 MWh	866	so	866	3%
Sub-total fossil fuels		-	12 676	15 865	18 333	67%
Sub-total R&R energies		-	7 792	200	7 832	29%
Sub-total other energies		-	1 187	0	1 187	4%
TOTAL			21 655	16 065	27 352	100%

DHS fuel mix:

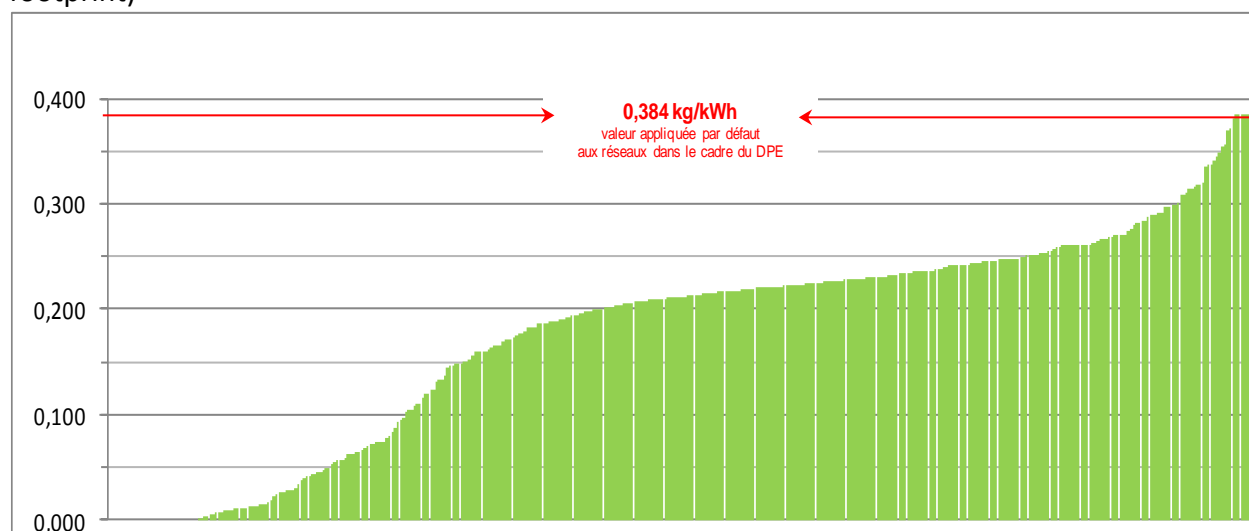


R&R Energy use in DHS (global)	Nb of DHS		Energy deliveries	
	Nb	%	GWh	%
DHS using 1 R&R energy source or more	131	32%	13 518	55%
DHS using only non R&R energy sources	283	68%	10 845	45%

R&R Energy use in DHS (detail)	Nb of DHS		Energy deliveries (GWh)	
	Nb	%	Total	Of which R&RE
>= 60% of R&R energy	86	21%	4 077	3 184
50 to 60% of R&R energy	7	2%	519	288
30 to 50% of R&R energy	16	4%	7 086	2 714
< 30% of R&R energy	305	74%	12 680	284

DHS dispersal in terms of CO2 footprint:

(0,384 kg/kWh being the coal value, imposed to all DHCS that do not voluntarily declare their CO2 footprint)



CHP on DHS (global)	Nb of DHS	Energy deliveries (GWh th)
DHS equipped with cogeneration	209	17 671
DHS NOT equipped with cogeneration	218	7 585

CHP on DHS (detail)	Unit	value
Electric capacity (net)	MW	1 669
Thermal capacity (recoverable)	MW	2 284
Electricity production	GWh e	5 717
Heat delivered to the network	GWh th	7 704

CHP fuel mix	GWh pci
Natural gas	15 472
Other energies*	593

* order of importance : coal, biomass, oil, renewable or recovered gas

DHC medium	In Nb of DHCS		Energy deliveries	
	Nb	%	GWh	%
Warm water (<= 110°C) only	290	70%	8 224	33%
Superheated water (> 110°C) only	72	17%	6 877	27%
Steam only	6	1%	304	1%
Cold water only	13	3%	894	4%
Various fluids	32	8%	8 930	35%

DHS heat Deliveries	Deliveries	
	GWh	%
Services	9 043	36%
<i>Healthcare</i>	1 603	6%
<i>Education</i>	2 166	9%
<i>Other services</i>	5 274	21%
Residential	14 555	58%
Industrial	1 488	6%
Other	152	1%