Input B_H_REFv1.5_demand_tab_supply_.txt — The EnergyPLAN model 16.1

Electricity demand (TWh/year):		Flexible demand	0,00
Fixed demand	7,95	Fixed imp/ex	4050,00
Electric heating + HP	2,93	Transportation	0,06
Electric cooling	0,22	Total	4061,16

District heating (TWh/year)	Gr.1	Gr.2	Gr.3	Sum
District heating demand	1,13	0,00	0,50	1,63
Solar Thermal	0,00	0,00	0,00	0,00
Industrial CHP (CSHP)	0,00	0,00	0,00	0,00
Demand after solar and CSHP	1,13	0,00	0,50	1,63

Wind	87	MW	0,18	TWh/year	0,00	Grid
Photo Voltaic	35	MW	0,08	TWh/year	0,00	stabili-
River Hydro	172	MW	0,44	TWh/year	0,00	sation
River Hydro	0	MW	0	TWh/year	0,00	share
Hydro Power	2105	MW	4,28	TWh/year		
Geothermal/Nuclear	0	MW	0	TWh/year		

	Capacities MW-e	Capacities MJ/s	Efficiencies elec.	Efficiencies Ther	COP
Group 2:					
CHP	0	1500	0,40	0,50	
Heat Pump	0	0			3,00
Boiler		0		0,90	
Group 3:					
CHP	1017	82	0,21	0,47	
Heat Pump	0	0			3,00
Boiler		0		0,90	
Condensing	1099		0,29		

Heatstorage:	gr.2: 0	GWh	gr.30	GWh
Fixed Boiler:	gr.2:0,0	Per cent	gr.0,0	Per cent

Electricity prod. from	CSHP	Waste	(TWh/year)
Gr.1:	0,00	0,00	
Gr.2:	0,00	0,00	
Gr.3:	0,00	0,00	

Regulation Strate	Technical regulation no. 1	
CEEP regulation	000000000	
Minimum Stabilisation share	0,00	
Stabilisation share of CHP	0,00	
Minimum CHP gr 3 load	0	MW
Minimum PP	0	MW
Heat Pump maximum share	1,00	
Maximum import/export	1800	MW

Distr. Name :	Hour_nordpool.txt		
Addition factor	0,00	EUR/MWh	
Multiplication factor	2,00		
Dependency factor	0,00	EUR/MWh pr. MW	
Average Market Price	227	EUR/MWh	
Gas Storage	0	GWh	
Syngas capacity	0	MW	
Biogas max to grid	0	MW	

Fuel Price level:

	Capacities MW-e	Storage GWh	Efficiencies Elec.	Ther.
Elec. Storage				
Charge 1:	0	0	0,80	
Discharge 1:	0		0,90	
Charge 2:	0	0	0,80	
Discharge 2:	0		0,90	
Electrolysers:	0	0	0,80	0,00
Rockbed Storage:	0	0	1,00	
CAES fuel ratio:	0,000			

(TWh/year)	Coal	Oil	Ngas	Biomass
Transport	0,00	13,43	0,01	0,00
Household	1,15	0,41	0,71	13,47
Industry	2,47	1,32	0,89	0,20
Various	5,83	0,88	1,07	0,39

Output WARNING!!: (1) Critical Excess; (3) PP/Import problem

	District Heating										Electricity																	Exchange	
	Demand	Production									Consumption						Production							Balance					Payment	
	Distr. heating	Solar	Waste CSHP	DHP	CHP	HP	ELT	Boiler	EH	Balance	Elec. demand	Flex.& Transp	HP	Elec-trolyser	EH	Hydro Pump	Tur-bine	RES	Hy-dro	Geo-thermal	Waste CSHP	CHP	PP	Stab-Load	Imp	Exp	CEEP	EEP	Imp	Exp
	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	%	GW	GW	GW	MW	Million EUR	
January	391	0	0	271	81	0	0	0	0	39	795	7	4	0	701	0	0	103	537	0	0	999	974	100	730	0	0	(155824		0
February	307	0	0	213	75	0	0	0	0	18	823	7	3	0	550	0	0	87	494	0	0	935	986	100	487	5	5	80	76966	709
March	283	0	0	197	72	0	0	0	0	14	761	7	3	0	508	0	0	111	518	0	0	894	1053	100	705	2	2	3211	3890	293
April	190	0	0	132	53	0	0	0	0	5	806	7	2	0	341	0	0	63	450	0	0	661	1176	100	331	16	16	163	52947	4002
May	114	0	0	79	35	0	0	0	0	0	874	7	1	0	204	0	0	54	351	0	0	430	1247	100	254	50	49	351	45300	9181
June	70	0	0	49	21	0	0	0	0	0	1010	7	1	0	126	0	0	61	234	0	0	267	1167	100	198	56	55	569	29767	10987
July	48	0	0	33	15	0	0	0	0	0	1121	7	1	0	86	0	0	64	483	0	0	182	1693	100	385	10	10	102	42850	1417
August	41	0	0	28	12	0	0	0	0	0	1080	7	0	0	73	0	0	61	532	0	0	153	1809	100	554	0	0	10	89134	63
September	62	0	0	43	19	0	0	0	0	0	1058	7	1	0	111	0	0	70	433	0	0	234	1553	100	360	19	19	195	64629	3276
October	147	0	0	102	45	0	0	0	0	0	985	7	2	0	263	0	0	83	438	0	0	553	1253	100	402	15	15	186	73395	2602
November	256	0	0	178	67	0	0	0	0	11	918	7	3	0	459	0	0	87	530	0	0	829	1131	100	649	1	1	1210	7739	78
December	315	0	0	219	76	0	0	0	0	20	924	7	4	0	565	0	0	112	397	0	0	945	873	100	662	37	36	2641	24446	4872
Average	185	0	0	129	48	0	0	0	0	9	930	7	2	0	332	0	0	80	450	0	0	589	1244	100	477	17	17	163	Average price	
Maximum	610	0	0	424	82	0	0	0	0	104	1578	13	7	0	1094	0	0	238	537	0	0	1017	1937	100	1665	906	904	1800	(EUR/MWh)	
Minimum	9	0	0	6	3	0	0	0	0	0	65	0	0	0	17	0	0	0	-420	0	0	35	0	100	0	0	0	0	233	244
TWh/year	1,63	0,00	0,00	1,13	0,42	0,00	0,00	0,00	0,00	0,08	8,17	0,06	0,02	0,00	2,91	0,00	0,00	0,70	3,95	0,00	0,00	5,18	10,93		4194	154	152	1,43	976887	37479

FUEL BALANCE (TWh/year):	DHP	CHP2	CHP3	Boiler2	Boiler3	PP	Geo/Nu.	Hydro	Waste/ HTL	CAES Elc.ly.	BioCon-version	Electro-Fuel	Wind	PV and Wind off CSP	Wave	Hydro	Solar.Th	Transp.	household	Industry Various	Total	Imp/Exp Corrected Imp/Exp	Net	CO2 emission (Mt): Total	Net
Coal	0,38	-	0,84	-	-	38,07	-	-	-	-	-	-	-	-	-	-	-	-	1,15	8,29	48,73	13821,86	13870,59	16,64	743,74
Oil	0,38	-	-	-	-	1,89	-	-	-	-	-	-	-	-	-	-	-	13,43	0,41	2,20	18,31	0,00	18,31	4,88	4,88
N.Gas	0,28	-	-	-	-	1,82	-	-	-	-	-	-	-	-	-	-	-	0,82	0,71	2,00	5,63	0,00	5,63	1,16	1,32
Biomass	0,22	-	0,04	-	-	1,77	-	-	-	-	-	-	-	-	-	-	-	-	13,47	0,59	16,09	0,00	16,09	0,00	0,00
Renewable	-	-	-	-	-	-	-	3,95	-	-	-	-	0,18	0,08	-	4,72	-	-	-	-	4,65	0,00	4,65	0,00	0,00
H2 etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,00	0,00	0,00	0,00	0,00
Biofuel	-	-	0,00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,00	0,00	0,00	0,00	0,00
Nuclear/CCS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,00	0,00	0,00	0,00	0,00
Total	1,25	-	0,88	-	-	43,54	-	3,95	-	-	-	-	0,18	0,08	-	4,72	-	14,25	15,74	13,09	93,41	13821,86	13915,27	22,74	749,94

District Heating Production

	Gr.1				Gr.2										Gr.3										RES specification				
	District heating MW	Solar MW	CSHP MW	DHP MW	District heating MW	Solar MW	CSHP MW	CHP MW	HP MW	ELT MW	Boiler MW	EH MW	Stor-age MW	Ba-lance MW	District heating MW	Solar MW	CSHP MW	CHP MW	HP MW	ELT MW	Boiler MW	EH MW	Stor-age MW	Ba-lance MW	RES1 Wind MW	RES2 Photo MW	RES3 River MW	RES 4-7 MW	Total MW
January	271	0	0	271	0	0	0	0	0	0	0	0	0	0	119	0	0	81	0	0	0	0	0	39	21	7	75	0	103
February	213	0	0	213	0	0	0	0	0	0	0	0	0	0	94	0	0	75	0	0	0	0	0	18	25	8	54	0	87
March	197	0	0	197	0	0	0	0	0	0	0	0	0	0	86	0	0	72	0	0	0	0	0	14	32	8	71	0	111
April	132	0	0	132	0	0	0	0	0	0	0	0	0	0	58	0	0	53	0	0	0	0	0	5	21	11	31	0	63
May	79	0	0	79	0	0	0	0	0	0	0	0	0	0	35	0	0	35	0	0	0	0	0	0	24	10	20	0	54
June	49	0	0	49	0	0	0	0	0	0	0	0	0	0	21	0	0	21	0	0	0	0	0	0	14	12	35	0	61
July	33	0	0	33	0	0	0	0	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	13	13	38	0	64
August	28	0	0	28	0	0	0	0	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	15	12	34	0	61
September	43	0	0	43	0	0	0	0	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	18	10	42	0	70
October	102	0	0	102	0	0	0	0	0	0	0	0	0	0	45	0	0	45	0	0	0	0	0	0	18	8	57	0	83
November	178	0	0	178	0	0	0	0	0	0	0	0	0	0	78	0	0	67	0	0	0	0	0	11	20	7	61	0	87
December	219	0	0	219	0	0	0	0	0	0	0	0	0	0	96	0	0	76	0	0	0	0	0	20	29	3	79	0	112
Average	129	0	0	129	0	0	0	0	0	0	0	0	0	0	56	0	0	48	0	0	0	0	0	9	21	9	50	0	80
Maximum	424	0	0	424	0	0	0	0	0	0	0	0	0	0	186	0	0	82	0	0	0	0	0	104	87	35	172	0	238
Minimum	6	0	0	6	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
Total for the whole year TWh/year	1,13	0,00	0,00	1,13	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00		0,00	0,50	0,00	0,00	0,42	0,00	0,00	0,00	0,00		0,08	0,18	0,08	0,44	0,00	0,70

Own use of heat from industrial CH0,00 TWh/year

ANNUAL COSTS (Million EUR)

Total Fuel ex Ngas exchange =	0
Uranium =	0
Coal =	0
FuelOil =	0
Gasoil/Diesel=	0
Petrol/JP =	0
Gas handling =	0
Biomass =	0
Food income =	0
Waste =	0
Total Ngas Exchange costs =	0
Marginal operation costs =	0
Total Electricity exchange =	35058
Import =	976887
Export =	-37479
Bottleneck =	37140
Fixed imp/ex=	-941490
Total CO2 emission costs =	0
Total variable costs =	35058
Fixed operation costs =	0
Annual Investment costs =	0
TOTAL ANNUAL COSTS =	35058

NATURAL GAS EXCHANGE

	DHP & Boilers MW	CHP2 CHP3 MW	PP CAES MW	Indi-vidual MW	Trans port MW	Indu. Var. MW	Demand Sum MW	Bio-gas MW	Syn-gas MW	CO2Hy gas MW	SynHy gas MW	SynHy gas MW	Stor-age MW	Sum MW	Im-port MW	Ex-port MW
January	67	0	228	171	1	240	708	0	0	0	0	0	0	708	708	0
February	53	0	218	134	1	261	667	0	0	0	0	0	0	667	667	0
March	49	0	223	124	1	243	641	0	0	0	0	0	0	641	641	0
April	33	0	207	83	1	194	519	0	0	0	0	0	0	519	519	0
May	20	0	183	50	1	173	427	0	0	0	0	0	0	427	427	0
June	12	0	155	31	1	140	340	0	0	0	0	0	0	340	340	0
July	8	0	215	21	1	160	405	0	0	0	0	0	0	405	405	0
August	7	0	226	18	1	113	366	0	0	0	0	0	0	366	366	0
September	11	0	203	27	1	157	399	0	0	0	0	0	0	399	399	0
October	25	0	204	64	1	386	681	0	0	0	0	0	0	681	681	0
November	44	0	226	112	1	268	652	0	0	0	0	0	0	652	652	0
December	54	0	194	138	1	394	782	0	0	0	0	0	0	782	782	0
Average	32	0	207	81	1	228	549	0	0	0	0	0	0	549	549	0
Maximum	105	0	228	268	1	743	1090	0	0	0	0	0	0	1090	1090	0
Minimum	2	0	0	4	1	0	9	0	0	0	0	0	0	9	9	0
Total for the whole year TWh/year	0,28	0,00	1,82	0,71	0,01	2,00	4,82	0,00	0,00	0,00	0,00	0,00	0,00	4,82	4,82	0,00

RES Share: 22,2 Percent of Primary Energy 46,4 Percent of Electricity 5,1 TWh electricity from RES