Input B_H_REFv1.9a_demand	_an	d_supply_tab.txt	The Energ	gyPLAN model 16	5.1
Electricity demand (TWh/year): Flexible demand0,00 Fixed demand 7,95 Fixed imp/exp. 4,05 Electric heating + HP 2,93 Transportation 0,06 Electric cooling 0,22 Total 15,21	Boile Grou CHP	0 1500 0,40 0,50 Pump 0 0 3,00 r 0 0,90 p 3: 443 82 0,21 0,47 Pump 0 0 3,00	COP CEEP regulation of the common of the com	Capacities St Elec. Storage MW-e C Charge 1: 0 Discharge 1: 0 Charge 2: 420 Discharge 2: 420 Electrolysers: 0	orage Efficiencies GWh Elec. Ther 0 0,80 0,90 3 0,80 0,90 0 0,80 0,00
Wind 87 MW 0,16 TWh/year 0,00 O,50 1,63 Wind 87 MW 0,16 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 1685 MW 4,17 TWh/year Geothermal/Nuclear 0 MW 0 TWh/year	Heats Fixed	ensing 1058 0,29 storage: gr.2: 0 GWh gr.30 GWh Boiler: gr.2:0,0 Per cent gr.0,0 Per c ricity prod. from CSHP Waste (TWh/yea 0,00 0,00 0,00 0,00 0,00 0,00 0,00 0,00	Dependency factor 0,00 EUR/MWh pr	Rockbed Storage: 0 CAES fuel ratio: 0,00	0 1,00 Ngas Biomass 0,01 0,00 0,71 13,47 0,89 0,20 1,07 0,39
Output District Heating			Electricity	<u>'</u>	Exchange
Production	_	Consumption	Production	Balance	Payment

				Dis	trict He	ating					Electricity															Exchange				
	Demand				Produ	ıction							Consu	umptior	ı				F	Product	ion				Е	Balance				
	Distr.				Ва-	Elec.	Flex.&		Elec-		Hydro	1	DEC	Hy-	Geo-	Waste		DD	Stab-		F	OFFD	CED	Paym Imp	ient Exp					
	heating MW	Solar MW	CSHF MW	MW	CHP MW	HP MW	ELT MW	Boiler MW	MW	MW	deman MW	dTransp MW	MW	trolyser MW	MW	MW	bine MW	RES MW	aro t MW	hermal MW	MW	MW	PP MW	Load %	Imp MW	Exp MW	CEEP MW	MW	Million	EUR
January	391	0	0	271	81	0	0	0	0	39	795	7	4	0	701	0	0	100	478	0	0	435	1124	100	101	0	0	0	28	(
February	307	0	0	213	75	0	0	0	0	18	822	7	3	0	550	0	0	84	477	0	0	407	885	100	12	0	0	0	2	(
March	283	0	0	197	72	0	0	0	0	14	761	7	3	0	508	0	0	108	475	0	0	389	971	100	39	0	0	0	7	C
April	190	0	0	132	53	0	0	0	0	5	806	7	2	0	341	0	0	61	476	0	0	288	645	100	2	0	0	0	0	(
May	114	0	0	79	35	0	0	0	0	0	874	7	1	0	204	0	0	50	461	0	0	187	593	100	0	0	0	0	0	(
June	70	0	0	49	21	0	0	0	0	0	1010	7	1	0	126	0	0	59	475	0	0	116	636	100	0	0	0	0	0	C
July	48	0	0	33	15	0	0	0	0		1121	7	1	0	86	0	0	62	477	0	0	79	972	100	0	0	0	0	0	C
August	41	0	0	28	12	0	0	0	0	0	1079	7	0	0	73	0	0	58	478	0	0	67	1111	100	1	0	0	0	0	C
Septemb October	er 62 147	0	0	43 102	19 45	0	0	0	0	0	1058 984	7	1	0	111 263	0	0	67 81	476 477	0	0	102 241	873 845	100 100	1	0	0	0	0	(
Novembe		0	0	178	67	0	0	0	0	11	917	7	3	0	459	0	0	85	478	0	0	361	1084	100	27	0	0	0	5	(
Decembe		0	0	219	76	0	0	0	0	20	924	7	4	0	565	0	0	109	474	0	0	412	1034	100	97	0	0	0	19	(
Average	185	0	0	129	48	0	0	0	0	9	930	7	2	0	332	0	0	77	475	0	0	257	899	100	24	0	0	0	Averag	je price
Maximum	n 610	0	0	424	82	0	0	0	0	104	1577	13	7	0	1094	0	0	233	478	0	0	443	1827	100	704	111	0	111	(EUR	R/MWh)
Minimum	9	0	0	6	3	0	0	0	0	0	65	0	0	0	17	0	0	0	0	0	0	15	0	100	0	0	0	0	298	191
TWh/yea	r 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	0,68	4,17	0,00	0,00	2,25	7,90		0,21	0,00	0,00	0,00	62	(
FUEL B	ALANCE	` .	• '									AES Bio					nd Wind				_		Indus	•		/Exp C			2 emiss	,
	DHP	CHP	2 CH	P3 B	oiler2 E	Boiler3	PP	Geo/N	lu.Hydr	o HTI	L El	c.ly. vei	sion F	uel	Wind	CSP	Wav	е Ну	dro So	olar.Th	I ransp.	housel	n.Variou	us Tota	1 1	mp/Exp	Net	1	otal Ne	∍t

1 OLE BILL WOL (1 WIII year).						Waster Of the Bloodin Electro					i v ana vvina on						maaat	ı y	IIIIP/ LAP	Concotoa	OOZ CITIOSIOTI (IVIL				
	DHP	CHP2	CHP3	Boiler2	Boiler	r3 PP	Geo/N	lu.Hydro	HTL	Elc.ly.	. versior	n Fuel	Wind	CSP	Wave	Hydro	Solar.	Tr Trans	sp.house	h.Variou	s Total	Imp/E	xp Net	Total Net	
Coal	0,38	-	0,84	-	-	26,55	-	-	-	-	-	-	-	-	-	-	-	-	1,15	8,29	37,21	0,71	37,91	14,51 14,78	8
Oil	0,38	-	-	-	-	0,81	-	-	-	-	-	-	-	-	-	-	-	13,43	0,41	3,18	18,21	0,00	18,21	4,77 4,77	7
N.Gas	0,28	-	-	-	-	0,78	-	-	-	-	-	-	-	-	-	-	-	0,82	0,71	1,99	4,59	0,00	4,59	0,89 1,04	4
Biomass	0,22	-	0,04	-	-	0,76	-	-	-	-	-	-	-	-	-	-	-	-	13,47	0,59	15,09	0,00	15,09	0,00 0,00	J
Renewabl	e -	-	-	-	-	-	-	4,17	-	-	-	-	0,16	0,08	-	4,61	-	-	-	-	4,85	0,00	4,85	0,00 0,00	J
H2 etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,00	0,00	0,00	0,00 0,00	J
Biofuel	-	-	0,00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,00	0,00	0,00	0,00 0,00)
Nuclear/C	CS -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0,00	0,00	0,00	0,00 0,00)
Total	1,25	-	0,88	-	-	28,91	-	4,17	-	-	-	-	0,16	0,08	-	4,61	-	14,25	15,74	14,06	79,95	0,71	80,66	20,17 20,59	9

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Output specifications	B_H_REFv1.9a_demand_and_supply_tab.txt	The EnergyPLAN model 16.1

											Dist	rict He	ating P	roducti	on													1 all	>
	G	Gr.1								Gr.2									Gr.3						RE	S spec	ificatior	า	
	District				District								Stor-	Ва-	District								Stor-	Ва-	RES1	RES2	RES3	RES T	otal
	heating	Solar	CSHF	DHP	heating	Solar	CSHP	CHP	HP	ELT	Boiler	EH	age	lance	heating	Solar	CSHF	CHP	HP	ELT	Boiler	EH	age	lance	Wind	Photo	River I	4-7 ɔ	
	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	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	18	7	75	0	100
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	23	8	54	0	84
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	29	8	71	0	108
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	19	11	31	0	61
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	21	10	20	0	50
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	12	12	35	0	59
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	10	13	38	0	62
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	12	12	34	0	58
Septembe		0	0	43	0	0	0	0	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	15	10	42	0	67
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	16	8	57	0	81
Novembe		0	0	178	0	0	0	0	0	0	0	0	0	0	78	0	0	67	0	0	0	0	0	11	17	7	61	0	85
Decembe	r 219	0	0	219	0	0	0	0	0	0	0	0	0	0	96	0	0	76	0	0	0	0	0	20	27	3	79	0	109
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	18	9	50	0	77
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	233
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 t	he whol	e year																											
TWh/yea	r 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	0,16	0,08	0,44	0,00	0,68

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

									NATI	JRAL GA	S EXCHA	ANGE						
ANNUAL COSTS (Million EUR)			DHP &	CHP2	PP	Indi-	Trans	Indu.	Deman	d Bio-	Syn-	CO2Hy	SynHy	SynHy	Stor-	Sum	lm-	Ex-
Total Fuel ex Ngas exchange =	295		Boilers	CHP3	CAES	vidual	port	Var.	Sum	gas	gas	gas	gas	gas	age		port	port
Uranium = 0			MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW
Coal = 268		January	67	0	86	171	1	239	565	0	0	0	0	0	0	565	565	0
FuelOil = 0		February	53	0	78	134	1	260	526	0	0	0	0	0	0	526	526	0
Gasoil/Diesel= 0		March	49	0	83	124	1	242	500	0	0	0	0	0	0	500	500	0
Petrol/JP = 0		April	33	0	73	83	1	194	385	0	0	0	0	0	0	385	385	0
Gas handling = 27		May	20	0	73 74	50	1	173	318	0	0	0	0	0	0	305 318	318	0
Biomass = 0		,	12	0	74 78	31	1	140	263	0	0	0	0	0	0	263	263	0
Food income = 0		June		0			1				0	0	0	0	0			, ,
Waste = 0		July	8	0	112	21	1	159	302	0	0	0	•	0	•	302	302	0
Total Naca Fushanan asata -	70	August	. 11	0	124	18	1	113	262	0	0	0	0	0	0	262	262	0
Total Ngas Exchange costs =	76	September		0	102	27	1	157	298	0	0	0	0	0	0	298	298	0
Marginal operation costs =	332	October	25	0	89	64	1	384	565	0	0	0	0	0	0	565	565	0
		November		0	91	112	1	267	516	0	0	0	0	0	0	516	516	0
Total Electricity exchange =	-880	December	54	0	80	138	1	392	666	0	0	0	0	0	0	666	666	0
Import = 62		Average	32	0	89	81	1	227	431	0	0	0	0	0	0	431	431	0
Export = 0		Maximum	105	0	142	268	1	741	968	0	0	0	0	0	0	968	968	0
Bottleneck = 0		Minimum	2	0	0	4	1	0	18	0	0	0	0	0	0	18	18	n
Fixed imp/ex= -941			_	•	Ü	•		Ŭ	10	·	·	·	Ū	Ū	Ŭ	10		ĭ
Total CO2 emission costs =	0	Total for th	e whole	year														
10tai 002 ciiii33i011 co3t3 -	O	TWh/year	0,28	0,00	0,78	0,71	0,01	1,99	3,78	0,00	0,00	0,00	0,00	0,00	0,00	3,78	3,78	0,00
Total variable costs =	-177																	ļ
Fixed operation costs =	0																	1

6845 RES Share: 24,9 Percent of Primary Energy 46,8 Percent of Electricity

7022

Annual Investment costs =

TOTAL ANNUAL COSTS =